



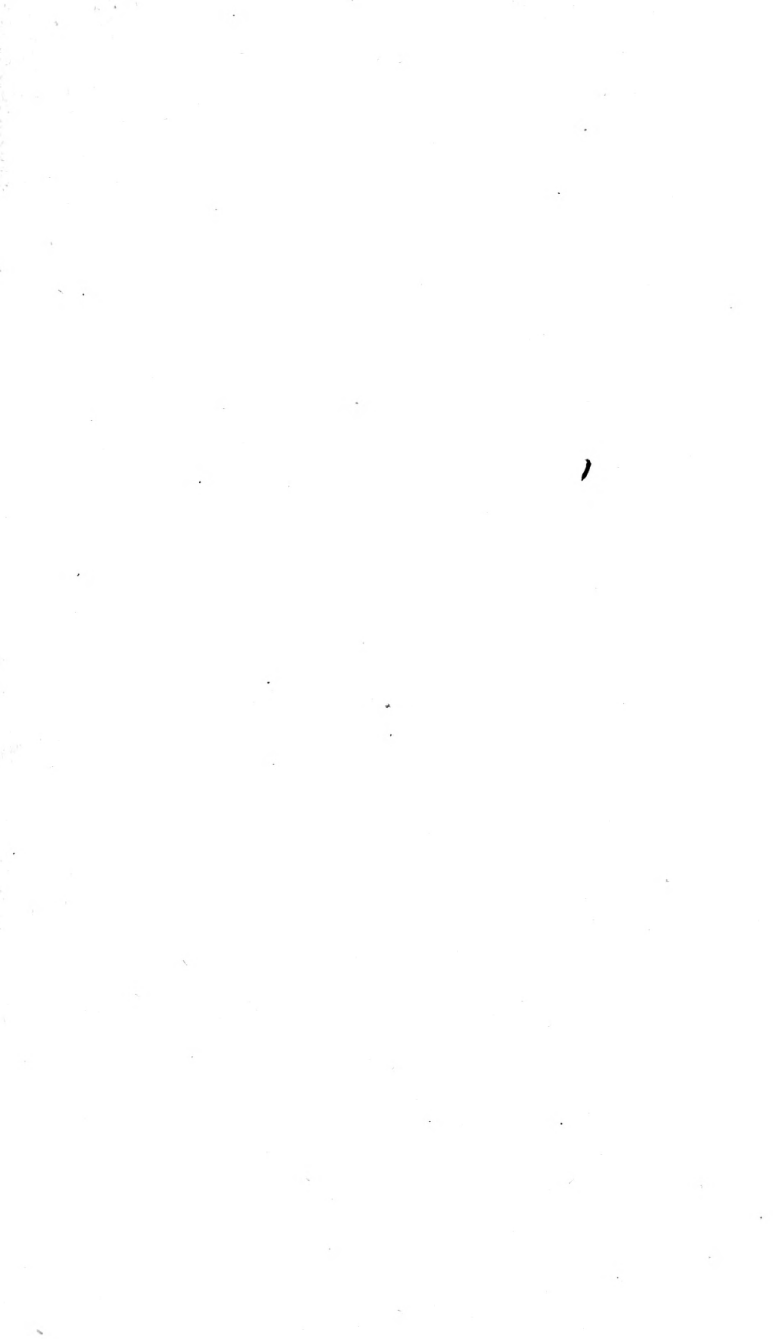
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UNITED STATES OF AMERICA.



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LECTURES

ON

POPULAR EDUCATION;

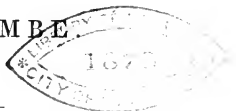
DELIVERED TO THE

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BY REQUEST OF THE DIRECTORS OF THE ASSOCIATION.

BY GEORGE COMBE.



¹ The efforts of the people are still wanting for the purpose of promoting Education; and Parliament will render no substantial assistance, until the people themselves take the matter in hand with energy and spirit, and the determination to do something.'—*The Lord Chancellor's Speech at York, 10th October, 1833.*

FIRST AMERICAN EDITION — WITH ADDITIONS BY THE AUTHOR.

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PREFACE

TO THE AMERICAN EDITION.

IN presenting the following Lectures to the people of the United States of America, I use the freedom to offer to their consideration a few preliminary remarks. When a British author warns the inhabitants of a foreign country against undue encouragement of manufactures, he is listened to with great suspicion ; the belief being general, that he is actuated by a selfish desire to preserve for his countrymen the profits of manufacturing industry, at the expense of the nation whom he addresses. Nevertheless, I conceive it allowable to state what I know to be truth, leaving every one to give it such a reception as it may appear to himself to deserve.

In Britain, a vast population has been called into existence, and trained to manufacturing industry ; and their labor is supposed, by many, to be the source of the wealth, happiness, and glory of the nation. That the skill and industry of this portion of the people have greatly contributed to the riches of the country, is indisputable ; but the happiness of the laborious individuals who have conferred this boon, has unfortunately not kept pace with the wealth which

they have produced to their country. Several millions of human beings have been trained to the manufacture of articles of commerce, and are unfit for every other occupation. In consequence of the increase of their own numbers, and improvements in machinery, the supply of labor has, for many years, outstripped the demand for it, and wages have fallen ruinously low.

By an unfortunate coincidence, much of the machinery of modern construction can be managed by children. The parent, who, by his own labor, for twelve hours a day, is able to earn only seven shillings a week, adds to his income one shilling and sixpence, or two shillings a week, for each child whom he can send to the manufactory ; and by the united wages of the family, a moderate subsistence may be eked out. The parents and children, however, are reduced to a hopeless condition of toil ; and starvation stares each of them in the face, when they cease to live in combination. Mental culture, and moral and intellectual enjoyment, are excluded by penury and labor. The system tends constantly to increase the evils of which it is the source. Young persons of both sexes, when they come to maturity, find themselves scarcely able to subsist, by their own labor ; whereas, if they can add the scanty income of three or four children to their own, their condition is, in some degree, improved ; — be-

cause house-rent, and the expense of furniture and fuel are not increased by the wants, in proportion to the contributions of the young. Adults are thus tempted — nay, almost driven by necessity — to contract early marriages, to rear a numerous population, devoted to the same employments with themselves, and in this way to add to the supply of labor, already in excess. The children grow up, and in their turn follow the same course ; and thus, however widely the manufactures of Britain may have extended, there has, for many years, existed an ignorant, starving, and miserable population, more than adequate to the performance of the labor required.

The reflecting and benevolent mind sees, in this state of things, the punishment which Providence inflicts on a nation which hastens to be rich, to the neglect of moral and religious improvement ; and it desires to provide a remedy for so great an evil. Hitherto, however, none that promises to be effectual has been discovered. The only one that presents a favorable aspect, is, that of limiting the hours of labor, increasing the mental cultivation of the people, and, if possible, inducing them to postpone the age of marriage, and dedicate their children to other pursuits, so that the competitors for employment in manufactures may be diminished in number, and wages may eventually rise.

The circumstances of the United States are so

different, that the lesson afforded by the operative manufacturers of Britain may be supposed not at all to apply to them. Happily this is at present the case : but the tendency of manufactures in every country, where personal liberty and property are secure, is to increase, and ultimately to become excessive ; and a wise legislature, instead of fostering, should place around them such statutory restraints as may prevent them from becoming a national calamity. One of the most indispensable of these regulations, appears to me to be, to limit the hours of labor, so that the operatives shall not have their whole lives dedicated to the mere creation of wealth, but shall have a portion of every day left free for the cultivation of their rational powers ; and the second is, to provide the means of communicating solid and useful information to this and every other class of the community. The inhabitants of the United States enjoy so many natural advantages, and are cramped by so few artificial barriers of private interest, that they are more favorably situated than any other people, for exhibiting man in his legitimate character — a religious, moral, and intellectual being. If the following Lectures shall, in any degree, promote this end, the author will have attained the highest object of his ambition.

23 CHARLOTTE SQUARE, }
Edinburgh, 1st January, 1834. }

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LECTURE I.

A FEW years ago, no question was more frequently asked than, What is the use of Education ? and to none was it more difficult to give a satisfactory answer ; not because education is of no use, but because the very term was apprehended in such a variety of senses by different individuals, that it was impossible to show that education was calculated to attain the precise advantage which each aspired to, when pursuing his own notions of utility. Besides, education is calculated to correct so many errors in practice, and to supply so many deficiencies in human institutions, that volumes would be required to render its real importance thoroughly conspicuous. Owing to the want of a philosophy of mind, education has hitherto been conducted empirically ; and, instead of obtaining from it a correct view of the nature of man, and of the objects and duties of life, each individual has been left to form, upon these points, theories for himself, derived from the impressions made upon his own mind by the particular circumstances in which he has been placed. No reasonable person takes up the philosophy of Astronomy, or of Chemistry, or of Physiology, at his own hand,

without study, and without seeking for ascertained principles ; yet, in the philosophy of Mind, the practice is quite different. Every professor, schoolmaster, author, editor, and pamphleteer, — every member of parliament, counsellor, and judge, — has a set of notions of his own, which, in his mind, hold the place of a system of the philosophy of man ; and, although he may not have methodized his ideas, or even acknowledged them to himself as a theory, yet they constitute a standard to him, by which he practically judges of all questions in morals, politics, and religion. He advocates whatever views coincide with them, and condemns all that differ from them, with as little hesitation as a professed theorist himself, and without the least thought of trying his own principles by any standard whatever. In short, in the great mass of the people, the mind, in judging of questions relating to morals, politics, and social institutions, acts as if it were purely instinctive, and exhibits all the confliction and uncertainty of mere feeling, unguided either by principles of reason or by facts ascertained by experience. Hence, public measures in general, whether relating to education, religion, trade, manufactures, the poor, criminal law, or any other of the dearest interests of society, instead of being treated as branches of one general system of economy, and adjusted on scientific principles, each in harmony with the others, are too often supported or opposed on narrow and empirical grounds, and occasionally call forth displays of ignorance, prejudice, and intolerance, at once dis-

graceful to the age, and calculated greatly to obstruct the progress of substantial improvement. Indeed, unanimity on questions of which the first principles must be found in the constitution of human nature, will be impossible, even among sensible and virtuous men, so long as no standard of mental philosophy is admitted to guide individual feelings and perceptions. Hence, when a young man, educated as a merchant, asks the use of anything, the only answer which will thoroughly interest him, will be one showing how much money may be made by it. The devoutly religious professor will acknowledge that alone to be useful, which tends directly to salvation ; while the votary of fashion will admit the utility of such pursuits only as are recognized by the refined but frivolous and generally ill-informed circle, which to him constitutes the highest tribunal of wisdom. To expound to such persons principles affecting the general interests of society, and to talk to them of schemes for promoting the happiness of human beings in their various every-day conditions of husbands and wives, parents and children, masters and servants, teachers and pupils, and governors and subjects, appears like indulging a warm imagination in fanciful speculation. They think that the experience of six thousand years is sufficient to show, that man is not destined in this life to be greatly different from what he has always been and now is ; and that any measures pretending greatly to improve his condition, however desirable, are not at all to be believed in by sensible and practical people. This

state of things could not exist if education embraced a true system of human nature, and an exposition of its relations to the external world.

To enable us to form a just estimate of our position as intelligent and accountable beings, introduced into a world prepared for our reception, and adapted to our nature by Divine power, wisdom, and goodness, let us briefly investigate, 1st, The general aspect of external nature ; and, 2d, Our own constitution.

The first fact that presents itself to our notice in this inquiry is, that the constitution of this world does not look like a system of optimism, but appears to be arranged in all its departments on the principle of gradual and progressive improvement. Physical nature itself has undergone many revolutions, and apparently has constantly advanced. Geology seems to show a distinct preparation of it for successive orders of living beings, rising higher and higher in the scale of intelligence and organization, until man appeared.

‘The globe, in the first state in which the imagination can venture to consider it,’ says Sir H. DAVY,* ‘appears to have been a fluid mass, with an immense

* The description in the text is extracted chiefly from ‘The Last Days of a Philosopher,’ by Sir HUMPHREY DAVY, 1831, p. 134, on account of its popular style ; but similar representations may be found in all recent works on Geology, — particularly ‘A Geological Manual, by H. T. DE LA BECHE ;’ and LYELL’s Principles of Geology ; — and in the Penny Magazine of 1833, in a very instructive popular form.

atmosphere revolving in space round the sun. By its cooling, a portion of its atmosphere was probably condensed into water, which occupied a part of its surface. In this state no forms of life, such as now belong to our system, could have inhabited it. The crystalline rocks, or, as they are called by geologists, the primary rocks, which contain no vestiges of a former order of things, were the results of the first consolidation on its surface. Upon the farther cooling, the water, which, more or less, had covered it, contracted; depositions took place; shell-fish and coral insects were created, and began their labors. Islands appeared in the midst of the ocean, raised from the deep by the productive energies of millions of zoophytes. These islands became covered with vegetables fitted to bear a high temperature, such as palms, and various species of plants, similar to those which now exist in the hottest parts of the world. The submarine rocks of these new formations of land became covered with aquatic vegetables, on which various species of shell-fish, and common fishes, found their nourishment. As the temperature of the globe became lower, species of the oviparous reptiles appear to have been created to inhabit it; and the turtle, crocodile, and various gigantic animals of the Sauri (lizard) kind seem to have haunted the bays and waters of the primitive lands. But in this state of things, there appears to have been no order of events similar to the present. Immense volcanic explosions seem to have taken place, accompanied by elevations and depressions of the surface of the

globe, producing mountains, and causing new and extensive depositions from their primitive ocean. The remains of living beings, plants, fishes, birds, and oviparous reptiles, are found in the strata of rocks which are the monuments and evidence of these changes. When these revolutions became less frequent, and the globe became still more cooled, and inequalities of temperature were established by means of the mountain-chains, more perfect animals became its inhabitants, such as the mammoth, megalonix, megatherium, and gigantic hyena, many of which have become extinct. Five successive races of plants, and four successive races of animals, appear to have been created and swept away by the physical revolutions of the globe, before the system of things became so permanent as to fit the world for man. In none of these formations, whether called secondary, tertiary, or diluvial, have the fossil remains of man, or any of his works, been discovered. At last, man was created; and since that period there has been little alteration in the physical circumstances of the globe.'

'In all these various formations,' says Dr. Buckland, 'the coprolites' (or the dung of the saurian reptiles in a fossil state) 'form records of warfare waged by successive generations of inhabitants of our planet on one another; and the general law of nature, which bids all to eat and be eaten in their turn, is shown to have been co-extensive with animal existence upon our globe; the *carnivora* in each period of the world's history fulfilling their destined

office to check excess in the progress of life, and maintain the balance of creation.'

This brief summary of the physical changes of the Globe, is not irrelevant to our present object. The more that is discovered of creation, the more conspicuously does uniformity of design appear to pervade its every department. We perceive here the physical world gradually *improved* and *prepared for man*.

Let us now contemplate Man himself, and his adaptation to the external creation. The world, we have seen, was inhabited by living beings, and death and reproduction prevailed before man appeared. The order of creation seems not to have been changed at his introduction : — he appears to have been adapted to it. He received from his Creator an organized structure, and animal instincts. He took his station among, yet at the head of, the beings that existed at his creation. Man is to a certain extent an animal in his structure, powers, feelings, and desires, and is adapted to a world in which death reigns, and generation succeeds generation. This fact, although so trite and obvious as to appear scarcely worthy of being noticed, is of importance in treating of education ; because the human being, in so far as he resembles the inferior creatures, is capable of enjoying a life like theirs : he has pleasure in eating, drinking, sleeping, and exercising his limbs ; and one of the greatest obstacles to improvement is, that many of the race are contented with these enjoyments, and consider it painful to be compelled to seek higher sources of gratification. But to man's animal

nature have been added, by a bountiful Creator, moral sentiments and reflecting faculties, which not only place him above all other creatures on earth, but constitute him a different being from any of them, a rational and accountable creature. These faculties are his highest and best gifts, and the sources of his purest and intensest pleasures. They lead him directly to the great objects of his existence, — obedience to God, and love to his fellow-men. But this peculiarity attends them, that while his animal faculties act powerfully of themselves, his rational faculties require to be cultivated, exercised, and instructed, before they will yield their full harvest of enjoyment. In regard to them, education becomes of paramount importance.

The Creator has so arranged the external world as to hold forth every possible inducement to man to cultivate his higher powers, nay, almost to constrain him to do so. The philosophic mind, in surveying the world as prepared for the reception of the human race, perceives in external nature a vast assemblage of stupendous powers, too great for the feeble hand of man entirely to control, but kindly subjected within certain limits to the influence of his will. Man is introduced on earth apparently helpless and unprovided for, as a homeless stranger ; but the soil on which he treads is endowed with a thousand capabilities of production, which require only to be excited by his intelligence to yield him the most ample returns. The impetuous torrent rolls its waters to the main ; but, as it dashes over the

mountain-cliff, the human hand is capable of withdrawing it from its course, and bending its powers subservient to his will. Ocean extends over half the globe her liquid plain, in which no path appears ; and the rude winds oft lift her waters to the sky : but, there the skill of man may launch the strong knit bark, spread forth the canvass to the gale, and make the trackless deep a highway through the world. In such a state of things, knowledge is truly power ; and it is obviously the interest of human beings to become acquainted with the constitution and relations of every object around them, that they may discover its capabilities of ministering to their own advantage. Farther, — where these physical energies are too great to be controlled, man has received intelligence, by which he may observe their course, and accommodate his conduct to their influence. This capacity of adaptation is a valuable substitute for the power of regulating them by his will. Man cannot arrest the sun in its course, so as to avert the wintry storms and cause perpetual spring to bloom around him ; but, by the proper exercise of his intelligence and corporeal energies, he is able to foresee the approach of bleak skies and rude winds, and to place himself in safety from their injurious effects. These powers of controlling nature, and of accommodating his conduct to its course, are the direct results of his rational faculties ; and in proportion to their cultivation is his sway extended. If the rain fall and the wind blow, and the ocean billows lash against the mere animal, it must endure them all ; because it cannot control their action, nor protect itself by art

from their power. Man, while ignorant, continues in a condition almost equally helpless. But let him put forth his proper human capacities, and he then finds himself invested with the power to rear, to build, to fabricate, and to store up provisions ; and, by availing himself of these resources, and accommodating his conduct to the course of nature's laws, he is able to smile in safety beside the cheerful hearth, when the elements maintain their fiercest war abroad.

Again : We are surrounded by countless beings, inferior and equal to ourselves, whose qualities yield us the greatest happiness, or bring upon us the bitterest evil, according as we affect them agreeably or disagreeably by our conduct. To draw forth all their excellencies, and cause them to diffuse joy around us — to avoid touching the harsher springs of their constitution, and bringing painful discord to our ears — it is indispensably necessary that we know the nature of our fellows, and act with an habitual regard to the relations established by the Creator betwixt ourselves and them.

Man, ignorant and uncivilized, is a ferocious, sensual, and superstitious savage. The external world affords some enjoyments to his animal feelings, but it confounds his moral and intellectual faculties. External nature exhibits to his mind a mighty chaos of events, and a dread display of power. The chain of causation appears too intricate to be unravelled, and the power too stupendous to be controlled. Order and beauty, indeed, occasionally gleam forth to his eye, from detached portions of creation, and

seem to promise happiness and joy ; but, more frequently, clouds and darkness brood over the scene, and disappoint his fondest expectations. Evil seems so mixed up with good, that he regards it either as its direct product or its inseparable accompaniment. Nature is never contemplated with a clear perception of its adaptation to the purpose of promoting the true enjoyment of man, or with a well-founded confidence in the wisdom and benevolence of its Author. Man, when civilized and illuminated by knowledge, on the other hand, discovers in the objects and occurrences around him a scheme beautifully arranged for the gratification of his whole powers, animal, moral, and intellectual : he recognizes in himself the intelligent and accountable subject of an all-bountiful Creator, and in joy and gladness desires to study the Creator's works, to ascertain his laws, and to yield to them a steady and a willing obedience. Without undervaluing the pleasures of his animal nature, he tastes the higher, more refined, and more enduring delights of his moral and intellectual capacities, and he then calls aloud for education as indispensable to the full enjoyment of his rational powers.

If this representation of the condition of the human being on earth be correct, we perceive clearly the unspeakable advantage of applying our minds to gain knowledge, and of regulating our conduct according to rules drawn from the information acquired. Our constitution and our position equally imply, that the grand object of our existence is, not to remain contented with the pleasure of mere animal life, but to

take the dignified and far more delightful station of moral and rational occupants of this lower world. Education, then, means the process of acquiring that knowledge of ourselves and of external nature, and the formation of those habits of enterprize and activity, which are indispensable to the performance of our parts, with intelligence and success, in such a scene.

These views may appear to many persons to be so clearly founded in reason, as to require neither proof nor illustration ; yet there are, others who are little familiar with such contemplations, to whom a few elucidations may be useful. As the latter are precisely those whom we desire to benefit, I solicit your permission to enter into a few details, even at the risk of appearing tedious to the more enlightened among my hearers.

To understand correctly the constitution of the human mind, and its need of instruction, it is useful to compare it with that of the inferior animals. The lower creatures are destined to act from instinct ; and instinct is a tendency to act in a certain way, planted in the animal directly by the Creator, without its knowing the ultimate design, or the nature of the means by which its aim is to be accomplished. A bee, for example, constructs its cell in conformity with the most rigid principles of physical science, according to which it is necessary that the fabric should possess a particular form, and be joined to other cells at a particular angle, in preference to all others. The creature has no knowledge of these

principles ; but acts in accordance with them, by an impulse obviously planted in it by the author of its being. Man is not directed by unerring impulses like this. Before he could construct a fabric with similar success, he would require to become acquainted, by experiment and observation, with the nature of the materials which he intended to use ; and to form a clear conception of the whole design, previously to the commencement of his labor. A mother, among the inferior animals, is impelled by pure instinct to administer to her offspring that kind of protection, food and training, which its nature and circumstances require ; and so admirably does she fulfil this duty even at the first call, that human sagacity could not improve, or rather could not at all equal, her treatment. Now these animals proceed without consciousness of the admirable wisdom displayed in their actions, because they do not act from knowledge and design. It is certain that wherever design appears, there must be intelligence ; but the wisdom resides not in the animals, but in their author. The Creator, therefore, in constituting the bee, or the beaver, possessed perfect knowledge of the external circumstances in which he was about to place it, and of its relations, when so placed, to all other creatures and objects ; and conferred on it powers or instincts of action, admirably adapted to secure its preservation and enjoyment. Hence, when enlightened men contemplate the powers and habits of animals, and compare them with their con-

dition, they perceive wisdom and benevolence conspicuously displayed by the Creator.

One consequence of this constitution, however, is, that there is no progression among the lower creatures, considered as a race. Their endowments and condition having been appointed directly by divine wisdom, improvement is impossible, without a change either of their nature or of the external world. They are placed at once at the highest point to which their constitution permits them to ascend ; and the possibility of their attempting to emerge out of their condition is effectually cut off, by their being denied the means not only of recording, but even of acquiring, any knowledge of design and relations, beyond the sphere of their own instincts. The fact that individuals of the domestic animals improve under human tuition, is not in real opposition to this principle ; because the nature of the horse, the dog, and other creatures destined to live with man, is constituted with reference to human influence. Their powers are constituted, so as to admit of his improving individuals among them ; but they do not advance as a race.

Man has also received instincts which resemble those of the lower animals, such as the love of sex, of offspring, of society, and of praise, the instinct of resentment, and many others ; by the exercise of which, as I have said, he may maintain his purely animal existence, with very little aid from education. But he is distinguished by the addition of two orders of faculties, which the inferior creatures want : 1st,

Moral sentiments — such as the love of justice, of piety, of universal happiness, of perfection ; and, 2dly, Reflecting faculties fitted to acquire knowledge of the properties of external objects, of their modes of action, and of their effects.

These two classes of faculties render man a very different being from the inferior creatures. The function of reason being to acquire knowledge of objects and their effects, Man is not carried to the most beneficial mode of promoting his own happiness in the direct and unreflecting manner in which the inferior creatures are led to that end. The human female, for example, devoid of all instruction and experience, will feel as lively a joy at the birth of a child and as warm an attachment towards it, and will as ardently desire its welfare, as the most devoted among the inferior creatures ; because she possesses the same instinctive love of offspring which distinguishes them. But in that condition of ignorance, she will not administer towards it the same perfect treatment, with reference to its wants, as the mother in the lower scale ; and for this reason, that, in the animal, the instinct is directed to its proper mode of gratification by the Author of Nature : He prompts her to do exactly what His wisdom knows to be necessary ; whereas, in the human being, the instinct is left to the guidance of reason. Woman is commanded to exert her intellect in studying the constitution, bodily and mental, of herself and her offspring, in order that she may rear it with success in all stages of its existence, while it requires her as-

sistance ; and if she shall neglect to perform this duty, she and her children will suffer a severe penalty, in being exposed to all the consequences of erroneous treatment.

Every day affords examples of the truth of this remark. Two young ladies, when in infancy, lost both parents ; but sufficient property was left to give them what is called a good education. They were reared in a fashionable boarding-school, and in due time the elder was respectably married. When her first child was born, she was extremely perplexed. Never having lived where there were infants in the family, she had had no opportunity of learning *by experience* how to rear such tender plants ; and never having been taught anything of the structure, or functions, or wants, of the human being, she possessed no principles by which she could direct the treatment of her child. In her anxiety to do it justice, she asked the advice of every female visitor, and was speedily bewildered amidst the incongruous recommendations which she received. Unable to decide for herself, she adopted now one plan and then another, till in a few weeks the unhappy infant died. This is an extreme case ; but an intelligent female friend, who communicated it to me, had no doubt that the child perished through lack of knowledge.

Many persons are not aware that human instincts are more blind than those of the lower animals, and that they lead to worse results when not directed by reason. They imagine that if they possess a feeling strongly, such as the love of offspring, or the love of

God, they cannot err in the mode of gratifying it ; they act with all the energy of impulse, and all the blindness of infatuation. A mighty change will be effected in human conduct, when the mass of mankind become acquainted with the indispensable necessity of reason to the proper direction of their feelings, and with the fact that knowledge is the grand element, without which reason cannot be efficiently exerted. Man, therefore, being a progressive and improvable being, has been furnished with reason, and been left to discover, by the exercise of it, his own nature, the nature of external objects, and their effects, and to adapt the one to the other for his own advantage ; and when he shall do so, he will assume his proper station as a rational being. The only limit to this proposition is, that each of his faculties, bodily and mental, and every external object, have received a definite constitution, and are regulated by precise laws, so that limits have been set to human aberration, and also to human attainments : but, within these limits, vast materials for producing happiness, by harmonious and wise adaptations, or misery, by discordant and foolish combinations, exist ; and these must be discovered and employed by man, before he can reach the full enjoyment of which his nature is susceptible.

I do not pretend to predicate to *what* degree of perfection man is capable of being carried by these means. Looking at the condition of the inferior animals, I should not expect optimism ; because disease, death, cold, heat, and famine, are incident to

them all : but, on dispassionately comparing the enjoyments of the inferior creatures, in relation to their natures, with the past and present enjoyments of the human race, in relation to their superior capacities, I fear that man does not surpass them to the extent which he ought to do, if he made a proper use of the means fairly in his power of promoting his own happiness. Comparing the civilized Christian inhabitants of modern Europe, with the ignorant, ferocious, filthy, and helpless savages of New South Wales, we perceive a vast advance : but I do not believe that the limits of attainable perfection have yet been reached even by the best of Europe's sons. All, therefore, that I venture to hope for is, that man, by the proper employment of the means presented to him, may arrive at last at a condition of enjoyment of his mortal existence, as great, in relation to his rational nature, as that of the lower animals is in relation to their natures. This is no more than saying, that the Creator has made man as perfect as a reasonable being, as He has made the lower animals perfect as instinctive creatures.

I trust, then, that most of you will now concur with me in thinking, that if man, by his constitution, be an intelligent and improveable being, he must be taught knowledge, and trained to apply it, as the first stage in his progress towards enjoyment. In other words, he must be educated.

Let us inquire, then, into the present condition of education, and afterwards consider how it may be improved.

Suppose a young man to receive what is by many held to be a sufficiently good education — to have been taught reading, writing, arithmetic, Latin, and a smattering of Greek — and to be then sent into the world, — What will be the amount of his attainments? The acquirements just mentioned appear considerable, and I am far from undervaluing them. They are the *instruments*, by the diligent use of which much useful and practical *knowledge* may be attained; but in themselves they do not constitute such knowledge. A few observations are necessary to elucidate this proposition.

First, In regard to language in general, and what are termed ‘the learned languages’ in particular, I remark, that we may have an extensive knowledge of things, and few words by which to express it. Thus, a self-taught artizan often advances far into the principles and practice of his art before he has read books and become acquainted with terms to designate the objects and operations with which he is familiar. He has more ideas than words; and this is a great evil, for he cannot communicate his knowledge, or receive instruction from others by books. Other individuals, however, have more words than ideas; which also is very inconvenient; for they have the means of communicating knowledge, but lack knowledge to communicate: they are great scholars, but can teach mankind no practical art or science.

Words are mere arbitrary signs for expressing feelings and ideas in the mind; and the best condi-

tion of an individual is to possess ample ideas, and an equally extensive stock of words. It is better, however, to have ten ideas, and only ten words to express them, although all the words should belong to one language, than to have only *one* idea, and *ten* words in as many *different* languages for communicating it. For example, a *monk*, who has only seen a horse passing by the window of his cell, may know that this animal is named in Greek, ἵππος (hippos;) in Latin *equus*; in English, *a horse*; in French, *cheval*; in Italian, *cavallo*; in German, *pferd*; and by some persons, he may be supposed to be, in consequence, highly learned. He is indeed considerably learned, but unfortunately not on the subject of the horse itself, but only on the names by which it is designated in different countries. His stock of REAL knowledge would be only that which he had picked up by looking at the creature through the window, and would not be in the slightest degree increased by the acquirement of these *six* words to express the *name* of the animal. His original NOTION of a horse, whatever it was, would continue unextended and unimproved by all these additions to its names. The person of a man is neither stronger, taller, nor more graceful, because he possesses six suits of clothes, than it would be if he had only one; and so it is with the mind. A youth trained in a stable-yard, whose attention had been directed to the various qualities necessary to constitute a good hackney, hunter, or race-horse, and who knew its name only in his mother-tongue, would

be far superior, as a practical judge of horses, to the monk. He would excel him in selecting, employing, managing, and rearing horses. He would possess ideas about the animal itself — would know what points were good and what bad about it; how it would work in different situations; how it would thrive on particular kinds of food; and in what manner it ought habitually to be treated, so as to obtain the most complete development of its natural powers. This is *practical knowledge*: acquaintance with words is *learning*. Hitherto education has been conducted too much on the principle of looking at the world only out of the window of the school and the college, and teaching the names of the beings and things therein contained, in a variety of languages, to the neglect of the study of the beings and things themselves; whereas man, as a creature destined for action, fitted to control nature to some extent, and, beyond this, left to accommodate his conduct to its course, requires positive knowledge of creation, its elements and laws, and has little use for words which go beyond the stock of his ideas.

Language, however, is not to be depreciated or despised. Man is obviously formed to live in society: his happiness is vastly increased by co-operation and interchange of ideas with his fellows; and language, oral and written, is his natural medium of communication. It is of first-rate importance to every individual, therefore, to possess not only words for all his ideas and emotions, but such expertness in using them in speech and writing, as may enable

him readily and successfully to convey to other minds the precise impressions existing in his own. Keeping in view, therefore, that notions of things are of first-rate utility, and that language is of value only as a means of communicating what we know and feel, we may proceed to inquire into the value of Greek and Latin as elements of education. The history of their introduction into schools, and of the circumstance which led to their past high estimation, merits our attention.

The Greeks and Romans were the earliest nations in Europe who attained to civilization ; in other words, they were the first who so far cultivated their mental faculties as to acquire numerous and tolerable precise ideas of government, laws, morals, intellectual philosophy, and the fine arts. In consequence of their minds possessing these ideas, their languages contained terms to express them. In the fourth and fifth centuries, the Roman empire was overrun by ignorant barbarians from the north of Europe, whose mental powers, from not having been cultivated, had not reached the conceptions now alluded to, and whose languages, in consequence, were as barren as their thoughts. A long night of darkness prevailed in Europe, until at length civilization again dawned where it had last set — in Italy. The cities of that country, situated under a genial climate, and surrounded by a fertile soil, had, as early as the twelfth and thirteenth centuries, made considerable progress in arts and manufactures : wealth flowed in upon them ; this produced leisure

and a desire for refined enjoyment, whence a taste for literature gradually arose.

The manuscripts of Greece and Rome had long slumbered in the cells of monastic institutions, and many of them had been erased to give place to monkish legends; but now they were ardently disinterred. When recovered and understood, they were found to contain more sublime and elegant poetry, — more refined yet nervous eloquence, — more brilliant, pointed, and ingenious, wit, — with profounder and juster views on law, criticism, and philosophy, — than had been known or heard of since the subversion of civilization; and all these treasures, too, embodied in languages so rich, discriminative, and refined, that Europe, in addition to this accession of knowledge, was at once furnished with exquisite vehicles of thought, without the labor of invention.

In these circumstances, Greek and Latin naturally became objects of intense study among all men who aspired to superior intelligence. There was great good sense in this direction of their mental energies; because, at that time, and in their situation, these languages really unlocked to them the richest intellectual stores then existing in the world, and put them in possession also of an instrument for communicating their thoughts, greatly surpassing, in delicacy and power, any they could have obtained by their own invention, or found in the literature of their native countries.

In this manner, and for these reasons, colleges, schools, bursaries, and other institutions, were established, for teaching and cultivating the Greek and Latin languages, and they obtained the appellation of 'humane literature,' *LITERÆ HUMANIORES*: eminence in them became the passport to fame; and a person deeply conversant with them was dignified with the title of 'a Learned Man.'

In the course of time, however, the nations of Europe, aided by the invention of printing, and, latterly, by stupendous discoveries in science and the arts, and the wide diffusion of Christianity among the people, far outstripped the Greeks and Romans in their most useful attainments. The Italians, French, English, and Germans, made gigantic strides in developing their mental powers; and their languages, by a law of the human constitution, kept pace with the multiplication of their emotions and ideas. England could long ago boast of a *BACON*, a *SHAKSPEARE*, a *MILTON*, a *NEWTON*, and a *LOCKE*; and she is now able to exhibit an additional list of names, so splendid and extensive as almost to defy repetition, of men who have embodied in her language thoughts and inventions so profound, admirable, and useful, that the philosophy, the science, and the arts, of the ancient world sink into comparative insignificance before them.

This change of circumstances has clearly altered the relative value and importance of Greek and Latin. There is now no *knowledge* relating to the physical and moral worlds contained in these languages,

which does not exist clearly expressed in English ; and there is no mode of feeling or of thought subservient to the practical purposes of life, that may not be as forcibly and elegantly clothed in our native language as in them. Human institutions and practices, however, often long survive the causes that gave them birth ; and from five to seven precious years of our lives in youth are still dedicated to the study of the learned languages, as if all their original importance remained.

At the time when public schools, such as the High School of Edinburgh and the grammar schools of the different burghs of Scotland, were instituted, there was no science that could benefit the people. These seminaries, therefore, as schools of preparatory instruction, were nearly co-extensive with the universities. In these primary schools, the pupils were taught the elements of Greek and Latin ; and in the colleges the same studies were carried forward to the highest point which the time and capacity of the scholar could reach. In the progress of years, however, arts and sciences have been discovered. In Scotland, the Universities have to a great extent kept pace with the growing knowledge of the age. In Edinburgh College, lectures are now delivered on almost all the physical sciences, and on every branch of medicine. In short, the knowledge of Nature in all her departments is taught ; Greek and Latin constituting only departments of the general system of tuition. If our primary schools had kept pace with this improvement, all would have been well. If we

had followed the spirit of practical wisdom manifested by our ancestors, and extended our elementary instruction in proportion to the enlargement of our university education, the knowledge of the people would have been far superior to what it actually is. But, by a strange anomaly, our primary schools have, till within these few years, been allowed to stand still, while the universities have advanced. These schools have continued to teach little else than English, Greek, and Latin, and the consequences have been most baneful. The great mass of the people of the middle and lower ranks, having been taught exclusively at these and the parish schools, have been led to believe languages to be practical knowledge ; and they have been defrauded of the opportunity of acquiring elementary instruction in the arts, sciences, and other departments of useful knowledge. They have wasted in studying — or in attempting to study — Greek and Latin, the only time which their busy lives left at their command for obtaining information. They have been sent into the world absolutely ignorant of the existence of the vast field of moral and intellectual instruction presented by the works of the Creator. The higher orders, again, who have advanced to the university classes, have found themselves obliged to commence with the very rudiments of the sciences, after having spent from five to seven years in what they were led to believe were preparatory studies. In the great public hospitals, the system of teaching languages produces its fruits in a very tangible form. While children living in their

parents' houses in a town learn something of real life by intercourse with society, perusing newspapers, and observing passing occurrences, the ignorance of the children shut up within the walls of an institution, and excluded from these sources of information, will, at the end of their imprisonment, present a just picture of the effects of the system to which they have been subjected. I have been informed, accordingly, by men engaged in practical business who have received apprentices from public hospitals, that the lads appear, on their entrance into active life, as if they had just dropped from the moon. Everything is strange to them; and very little of what had been previously taught to them presents itself in their new condition in a practical form. What I contend for is, that common sense should be employed to direct the studies in the primary schools as well as in the universities, and that, in addition to languages, the elements of useful knowledge should be there taught.*

* Since the Lectures were written, a great improvement has been introduced into the Regulations of GEORGE HERIOT'S Hospital in Edinburgh. On 1st November, 1833, it was enacted by the Governors, that the branches of education for the senior boys 'shall be such as may be interesting to *all* these boys, whatever may be their destination in after life;' and among the branches enumerated are, 'the first principles of Natural History and Mechanical Philosophy.'

I have received the following letter since the publication of these Lectures.

'Heriot's Hospital, 26th Dec. 1833.

'To GEORGE COMBE, Esq.

'SIR,—In your Lectures on Education lately published, it seems to be assumed, that it has not hitherto been usual to

In surveying, then, the prevalent system of confining education in primary schools chiefly to languages, we observe that the following consequences ensue : *First*, The human faculties desire *knowledge* as their natural food, and it is only after a considerable stock of ideas has been acquired, and many emotions experienced, that the value of words, as a means of expressing them, comes to be appreciated. By the common practice of teaching, however, little knowledge of *things* is communicated, and children are compelled to proceed at once to the study of difficult, copious, and obsolete languages, to have their memories burdened with words corresponding to which they have no ideas. This proceeding being an outrage upon Nature, — tedium, disgust, and

communicate scientific knowledge to the boys belonging to this institution.

‘ In justice to myself, I must take the liberty of informing you, that during several years, that I have been one of the teachers here, the older boys under my charge have been in the habit of studying a book, which contains chapters on such subjects as the following : —

‘ General properties of bodies. Cohesive attraction. Capillary attraction. Gravitation. Laws of motion. Mechanical powers. The lever. The wheel and axle. The pulley. The inclined plane. The wedge. The screw. Mechanical properties of fluids. Specific gravity. Mechanical properties of air. On the general effects of heat. Chemical attraction. Component parts of atmospheric air. Oxygen. Nitrogen. Nitrous oxide gas. Component parts of water. Hydrogen. On the agency of water as connected with heat, &c. &c. &c.

‘ I may also state, that I have been in the habit of occupying one of the *play hours* of the boys in exhibiting experimental

suffering, invade the youthful mind. As a means of conquering aversion, severe discipline used to be, and occasionally still is, resorted to, — which, being felt to be unjust, rouses the worst feelings and debases the sentiments, while the intellect is starved and impaired by dealing habitually with sounds to which no clear conceptions are attached.

Secondly, Under this system, children make no substantial progress in any useful acquirement. Nine out of ten drawl away the months and years of their allotted penance, and, within a brief space after its close, forget every syllable which they have learned with so much labor and pain ; and even the tenth, who, from a higher natural talent for languages, perhaps distinguished himself by his classical attainments, does not, on entering the counting-room or

illustrations of everything in the above chapters, susceptible of being illustrated in that way. This can be attested by my friend Dr. Murray, who has shown a liberality which I can never too highly estimate, in supplying me with apparatus, and materials for conducting the experiments. The boys have always felt so much interest not only in the exhibition, but in the explanation of the rationale of these experiments, that, although they deprived the boys of one of their play hours, my great difficulty has always been, not to use means to induce them to attend, but to keep back those who had no right to be present.

‘As you take so deep an interest in the subject of education, I would account it a favor, if you would make a visit to my school, any day except Saturday, between 1 and 2 o’clock, when I shall have an opportunity of showing you what we have been doing in this department.

‘I am, sir, your most humble and obedient servant,

(Signed) ‘JOHN BELL.’

workshop, always find himself as superior to his competitors in the practical business of life as in scholarship.

If the study of the dead languages is not prosecuted in after life, the time devoted to them is positively misapplied. It is a fact quite notorious, that nine-tenths of the children educated in a commercial town do not follow professions for which Greek and Latin are indispensable ; and hence the time and money expended by at least this proportion of pupils are most unprofitably bestowed. Indeed there is a great delusion in the public mind in regard to the necessity of Greek, even for the medical profession. Professor CHRISTISON, when examined some years ago before the Royal Commission which visited the University of Edinburgh, stated, that at the High School he had been dux of the Greek Class, and at the College had gained a prize for a knowledge of that language, and was naturally fond of it ; but that from the time when he began to study medicine, he found his attention so fully occupied by substantial science, that he had scarcely opened a Greek book ; while he had been obliged to study French and German for the sake of the medical information to which they were the means of obtaining access.*

* I heard the statement in the text some years ago from a friend, and noted it at the time ; but, before publishing it, I wrote to Professor CHRISTISON, mentioning my desire to ascertain if it was correct, and he has kindly sent me the following letter : —

It is erroneous to say that Greek and Latin are indispensably necessary to enable a boy to understand his own language. This must be the case only where no adequate pains are bestowed by teachers in conveying fully the meaning and value of English expressions. All words are mere arbitrary sounds, and, in itself, a sound invented by an Englishman is as capable of being rendered intelligible by proper definition, as one first suggested by a Greek or Roman. A great proportion of the words which compose the English language are derived

‘ To GEORGE COMBEE, Esq. 23 Charlotte Square.

‘ MY DEAR SIR, — The evidence before the University Commissioners was never published, though printed; nor have I seen that part of my evidence to which you refer since the time it was given. But, to the best of my recollection, I stated in regard to Greek — very much as you have put it in your letter — that, in my youth, I had cultivated it for about five years, and had made some proficiency in it, being fond of the language; but that I had since found so little occasion to put it to practical use, although pursuing the various branches of my profession as objects of scientific study, that I did not believe I could at that moment translate a single passage of Greek which might be placed before me. Such is certainly still the state of matters with me and my Greek; and I had occasion very lately, in our discussions in the *Senatus Academicus* regarding the propriety of preliminary general education for Doctors of Medicine, to renew my objections to Greek as one of them, in the terms now mentioned. I am almost certain that, in my evidence before the Commission, I also added, that if any other language but Latin were to be required, I should infinitely prefer placing French, and even German too, in our *Statuta*.

‘ My opinion regarding Greek shortly is, that it is a most desirable branch of literature for imparting general knowledge and cultivation to the mind; but, for direct professional purposes, is of so little consequence, both in itself and likewise as

from the Saxon ; yet nobody thinks a knowledge of that language also to be necessary for the due understanding of our native tongue. The grand requisites to the right use of speech are two,—clear notions or ideas, and accurate definitions of the words employed to designate them. The *former* will be best attained by studying *things* and their relations, and the *latter* by a careful exposition of our mother-tongue, by a person who knows scientifically both the things signified and the genius of the language.

compared with modern languages and the exact sciences, that, considering the great augmentation of the branches of proper medical study in these days, the pursuit of it, as a compulsory measure for medical students, is a mere waste of time and labor. Believe me your's very truly, R. CHRISTISON.

‘ November 23.

‘ 3 GREAT STUART STREET.’

‘ P. S. — I have no objection to your making any public use of my sentiments which you may desire ; for I am sure they coincide with those entertained by most qualified judges whom I have conversed with on the subject ; and I am most anxious at the present moment — when the matter of medical education is about to be taken up by the Government, — that unprofessional men of common sense be not led away by the natural partiality of classical scholars for their favorite pursuit, or by the recollection, that, in former times, when medicine and the medicinal sciences were in small compass, and the student had therefore ample time for collateral studies, Greek was naturally enough considered a necessary branch of knowledge, because it was one of the almost indispensable tests of a man of cultivated mind or a learned profession.’

I consider the cause of rational education much benefited by the testimony of Professor CHRISTISON in the prefixed letter. It is highly characteristic of that bold, independent, and practical understanding, which has raised him at an early age to a distinguished place in the University of his native city.

The derivation of words is not always an index to their true signification : *artery* means, literally, air vessel, yet it circulates blood ; physiology is derived from *physis*, nature, and *logos*, discourse ; yet in English it is used to designate only the doctrine of animal and vegetable functions. In teaching etymology, therefore, we must often guard the student against the errors into which it would lead him ; so that the difficulty of his understanding his native tongue, is to that extent increased by his studies in Greek and Latin.

Various obvious reasons exist why so little of English is understood by those who learn *it* and no other language or science at school. Owing to the deficiency of their own education, teachers themselves, in general, do not possess distinct knowledge of the things signified by the sounds which they communicate ; and, from not understanding ideas, they have it not in their power to define words accurately. Hence they cannot, and do not, bring together before the minds of the pupils, a clear conception of the things signified, and of the sign, without the combination of which the right use of speech is impracticable. Farther ; schoolmasters, in general, communicate only the *sounds of words*, and the *abstract* rules of grammar ; but this is not teaching *a language*. Teaching a language implies unfolding its structure, idiom, and power—a task which requires much reflection and extensive information.

A professor of English, therefore, would be more useful to nine out of ten of the pupils of any acade-

my for the education of the industrious classes, than professors of Greek and Latin ; and it is only after English has been taught in this or such other way as may be best adapted to the human understanding, and without success, that the conclusion ought to be drawn that it cannot be understood sufficiently for all useful and ornamental purposes, without a previous knowledge of Greek and Latin. The extensive study of Greek and Latin by learned men, has led to the practice of compounding all new words out of Greek roots ; and as Chemistry, Geology and other branches of Natural History, are advancing with cheering rapidity, multitudes of purely Greek words are added to our language every year, and the uninitiated suffer great inconvenience from not understanding them. This evil, I believe, is to a great extent unavoidable. The things described are new in science, and new names are required by which to designate them. Uninstructed readers are unacquainted with these *objects*, as well as with their names. If the objects were studied, which can be done only by observation, less difficulty would be found in comprehending the words, although they are derived from Greek and Latin roots. It would be extremely difficult to give to names compounded of English terms, that scientific precision which is attainable by using Greek and Latin. Explanatory dictionaries, however, of words, common and scientific, borrowed from these languages, have been published ; so that no one is compelled to study ancient tongues for six or seven years, for the sake of under-

standing the derivation of a few hundreds of scientific terms. In a very useful work by Dr. R. HARRISON BLACK, entitled 'The Student's Manual,' (published by LONGMAN & Co.), the Greek roots are printed in the Greek character, and also in the Roman, by which means unlearned readers may become acquainted with the Greek letters, and many common Greek words, almost without an effort.

It has often been observed, that the Greeks themselves studied no language except their own, and yet attained to exquisite delicacy and dexterity in the use of it; and why may not the English do as much? The objection, that Greek is a primitive, and English a derivative tongue, is met by the answer, that every word is merely a sound indicative of an idea or an emotion, and that it makes no difference in the possibility of comprehending the meaning of a word, whether the sound was invented by the English themselves, or borrowed by them from the Greeks or Romans. In learning the meaning of Greek words, the student must connect the thing signified directly with the expression, because he has no etymology to render the Greek intelligible. But if he can comprehend Greek by merely connecting the idea with the word, why may he not learn to understand English by a similar process? It may be added, that some of the most eminent of our English authors, such as SHAKESPEARE, BURNS, COBBETT, and a whole host of female writers, had little or no acquaintance with the dead languages;

and that there are not wanting instances of learned critics, like BENTLEY, whose classical knowledge did not enable them to express themselves in their native tongue with tolerable correctness, gracefulness, and ease.

We have the testimony of several of the greatest names in English literature against the existing practice. 'It is deplorable,' says COWLEY in his *Essays*, 'to consider the loss which children make of their time at most schools, employing or rather casting away, six or seven years in the learning of words only, and that very imperfectly.'

LOCKE, in his treatise on education, asks : 'Would not a Chinese, who took notice of our way of breeding, be apt to imagine that all our young gentlemen were designed to be teachers and professors of the dead languages of foreign countries, and not to be men of business in their own ?'

GIBBON the historian remarks, that 'a finished scholar may emerge from the head of Westminster or Eton, in total ignorance of the business and conversation of English gentlemen in the latter end of the eighteenth century.'

Mr. MOORE, who cites these authorities in his notices of the Life of Lord BYRON,* adds, that that gifted poet was a miserable Greek and Latin scholar while he attended Harrow school ; that he hated the task of learning these languages ; and that he acquired his astonishing copiousness, flexibility, and beauty of style, by extensive miscellaneous reading

* Vol. i. p. 89, 90. Murray, 1832.

in his native tongue. MILTON says, — ‘Though a linguist should pride himself to have all the tongues that Babel cleft this world into, yet, if he have not studied the *solid things* in them, as well as the words and lexicons, he were nothing so much to be esteemed a learned man as any yeoman or tradesman competently wise in his mother dialect only.’ And Dr. ADAM SMITH observes, that ‘it seldom happens that a man, in any part of his life, derives any conveniency or advantage from some of the most laborious and troublesome parts of his education.’ — *Wealth of Nations*, B. v. c. 1.

Education, then, consisting chiefly of languages, leaves the mind of the pupil ignorant of things, ignorant of men, and ignorant of the constitution of the social system in which he is to move. He is trained in abstraction, and among shadows, and when he enters practical life he finds that his real education is only then at its commencement.

Education consisting of a knowledge of natural science, on the contrary, produces an early and a deep conviction that man is made for action; that he is placed in a theatre of agents, which he must direct, or to which he must accommodate his conduct; that everything in the world is regulated by laws instituted by the Creator; that all objects which exist — animate and inanimate — have received definite qualities and constitutions, and that good arises from their proper, and evil from their improper application. Education makes known what these qualities are. It invigorates the understanding,

and thereby gives boldness to the intellect, and independence to the sentiments.

The practical effect of these two modes of instruction must be widely different. In my next lecture I shall consider the condition of the industrious classes, and also that of females of every rank, in regard to education, and offer a few suggestions on the means of imparting to both, the elements of useful and entertaining knowledge.

LECTURE II.

THE question naturally presents itself — What constitutes a good education? The answer will be found by attending to the distinction between means and an end. If an architect is employed to build a house, he first considers the locality, next prepares a plan, and then calls in the aid of practical workmen, to combine his materials into the proposed erection. To be able to produce a plan, characterized at once by taste, elegance, and commodious arrangement, the architect requires to have studied mathematics and drawing. These constitute the elementary knowledge by means of which he is enabled to invent a plan. But the design itself is only the means towards the main end, the erection of a house. The acquisition and subsequent combination of the materials according to the design, alone accomplish the object. Now, drawing and mathematics are admirable attainments viewed, as means towards producing a splendid palace, a commodious bridge, or a stupendous aqueduct; but if they produce nothing *but themselves*; or, if they produce plans merely, pleasing to the fancy, and not applicable to purposes of utility, they must be

viewed as mere ingenious recreations or elegant accomplishments. What drawing and mathematics are to practical house-building, languages, writing, and arithmetic, are to a knowledge of things, and to practical business. They are means of acquiring knowledge ; and knowledge itself is only the material, by applying which, practically and skilfully, business may be transacted, and enjoyment procured. Indeed, I might go farther, and say that drawing and mathematics embody ideas ; whereas language in itself, apart from its applications, is a mere collection of arbitrary sounds. To limit the education of a man who is destined to act the part of a husband, father, and member of society engaged in practical affairs, to reading, writing, accounts, and the dead languages, is worse than the project of arresting the education of the architect at drawing, mathematics, and designing, without teaching him knowledge of materials, their strength, durability, cost, and modes of arrangement. A young lady who can draw a very handsome cottage could not rear a fabric corresponding to it. She is not an architect, and the difference between her and an architect consists in this, — that she is defective in all the practical knowledge, skill, and experience, which are indispensable to render her design an actual house. A scholar in Greek and Latin is not a man of business, for a similar reason. He is not instructed in that knowledge of affairs, and things that exist, the management of which constitutes practical business. As, however, the architect must begin by learning to draw, so the

practical member of society must commence by studying the means for acquiring knowledge ; and I proceed to inquire what these means are.

The English language, writing, and arithmetic, then, are important *means* of acquiring and communicating knowledge. They ought to be sedulously taught, and by the most approved methods. Algebra and pure mathematics also belong to the class of means. The former relates solely to numbers and their relations ; the latter to portions of space and their proportions. The most profound skill in them, is compatible with extensive ignorance concerning every object, topic and relation, that does not essentially imply exact proportions of number and space. All languages, likewise, belong to the class of means. In preferring one to another, we ought to be guided by the principle of utility ; — that in which most knowledge is contained is most useful. For this reason, French, German, and Italian, appear to me more valuable acquirements than Greek and Latin.

The second object of education is the attainment of knowledge itself.

If the season for obtaining real knowledge be dedicated to the study of languages, the individual enters on life in a state of qualification for practical business, similar to that of the lady for the practice of architecture, after having completed her studies in drawing. He is deficient in many acquirements that would be substantially useful for the preservation of health and conducting of affairs. He knows noth-

ing about the structure of his own body, and very little about the causes which support it in health or subject it to disease : he is very imperfectly informed concerning the constitution of his own mind, and the relations established between himself and other beings : he is not instructed in any science ; knows nothing of the principles of trade ; is profoundly ignorant of the laws of his country, which he is called on to obey and even to administer ; and, in short, is sent into society with little other preparation than a stock of prejudices gathered from the nursery, and of vague imaginations about the greatness of Greece and Rome, the beauties of classical literature, and the vast superiority of learned pedantry over practical sense.

To discover the evils that arise from this misdirection of education, we have only to advert to the numerous cases of individuals who ruin their constitutions, and die in youth or middle age, not from the fury of ungovernable passions which knowledge could not subdue, but from sheer ignorance of the physical conditions necessary to health ; — or to the ruined fortunes and broken hearts clearly referrible to the ignorance of individuals of their own incapacity for the business in which they have embarked, — of the characters of those with whom they have connected themselves, — of the natural laws which govern production, or of the civil laws which regulate the transactions of men in particular states ; — and to ask, how many of these calamities might have been avoided by instruction and by proper discipline

of the mind in the fields of observation and reflection.

To understand what constitutes useful and practical knowledge, you are requested to bear in mind the principles which I laid down and illustrated in the first lecture, — that every inanimate object and every living being has received a definite constitution from the Creator, in virtue of which it stands in one or other of two relations towards man :— either its natural qualities are such as he may bend to the purposes of his own enjoyment, or they are too gigantic to acknowledge his control, and he must accommodate his conduct to their sway. Water may be pointed to as an example of the first class : Man, as I formerly observed, may turn the roaring torrent from its course, ere it dashes over the mountain-cliff, and conduct it, as his humble slave, to his mill, where it may be made to grind his corn, weave his cloth, forge his iron, or spin his thread, according to the direction given to it by his skill ; or, he may inclose it in strong metallic boilers, by fire convert it into steam, and bend its powers to propel his ship, in the face of the stormy winds and waves, to any wished-for haven : or, he may borrow from it wings with which to fly over field and meadow on the smooth lines of his artificial railway. But before he can command these high enjoyments, how minute and accurate must be his study of water and the laws by which it is governed, and of mechanical philosophy and its applications ! and how vast, skilful, and complicated must be his combinations of the

rude materials with which nature has furnished him ! Wind affords an instance of the powers which man cannot control, and to which he must accommodate his conduct. He cannot guide the air as he does the stream of water ; but to his mill-house he may give a revolving top, so that let the wind blow from what point it listeth, his sails will spread their bosoms directly to the breeze. He cannot bid the gale blow gently or with violence, as his machinery may require, to crush into dust a load of flint, or revolve lightly in forcing the slender saw through the tapering pine : but he can regulate his canvass according to the force required, so that the wind, if impetuous, shall meet a contracted surface on which to expend its force ; and, if more calm, shall be caught by a broad expanded sail. Man has no power over the direction of the wind on the ocean : but by the skilful construction of his vessel, the adaptation of his masts and sails, and the giant power of the helm, he can so accommodate his bark to its influence, that he can steer in every direction save that from which the wind directly blows ; nay, by skill and perseverance, he can accomplish even this, and, by tacking, gain upon the wind. Here also, let us remark how much observation of things that exist, and how much skilful combination, and practical adaptation of the powers which man can yield to the nature and course of those which defy his control, must be put forth before this glorious triumph of his ingenuity can be accomplished.

These illustrations are of universal application. In common life we may require neither to forge, to weave, to steer, nor to spin ; but we all require to prosecute some vocation of usefulness and duty, otherwise we exist in vain. Now, let us move in what circle we may, we are encompassed by the elements of nature, which minister to our health and enjoyment, or to our detriment and discomfort, according as we use them wisely or the reverse, according as we adapt our conduct to their real qualities or run counter to their influence. We are surrounded by human beings, and are influenced by the great tides of public affairs ; and without knowledge of external nature, and of the nature of man, his history, laws, and institutions, we shall be no more capable of acting well and wisely through life than the mariner of steering successfully, without helm, compass, or chart.

Moral and religious instruction must continue to be acquired during life. Hitherto, the great object of preachers has been to communicate this kind of knowledge, and I sincerely wish success to their efforts. I do not here enlarge on moral and religious education, because society is alive to its importance. To give full effect to that teaching, I consider a trained and enlightened intellect, and disciplined moral sentiments to be indispensably necessary, and these can be attained only by combining secular with sacred knowledge.

To attain useful knowledge of natural objects, and the laws of their action, we require to study Chem-

istry, Anatomy, Natural History, and Natural Philosophy. These make us acquainted with existing nature, and ought to constitute important branches of education. For the industrious portions of the people, it is not necessary to teach them in minute detail. Elementary instruction by means of primary schools, and, at a later age, by popular lectures, elucidating the leading principles and applications of these sciences, would be of incalculable benefit. It is delightful to be able to record that a neighboring nation — Prussia — has set a noble example to Europe on the subject of Education. In Prussia,* as in Germany generally, it is obligatory on all parents to send their children to school from the ages of seven to fourteen, beginning earlier if they choose ; and the duty is enforced by penalties. Each parish is bound to support an elementary school ; each considerable town a burgher school for the more advanced studies ; each considerable district a gymnasium for classical studies ; and each province has its university. The parish-school is supported by the parish, and for its management all the landholders and heads of families are formed into a union, which appoints a committee to inspect and watch over the school. The system of instruction is prescribed by authority, and is nearly uniform for the whole monarchy. It embraces, in the *elementary* schools, 1. Religion and morals ; 2. The German tongue ; 3. Elements of geometry and drawing ; 4. Arithmetic,

* Edinburgh Review, No. 116.

pure and applied; 5. The elements of physics, meaning chemistry and natural philosophy, general history, and the history of Prussia; 6. Singing; 7. Writing; 8. Gymnastic exercises; 9. 'The more simple manual labors,' by which seems to be meant the use of tools employed in the most common occupations, such as the spade, pick-axe, saw, plane, file, trowel, stone-chisel, &c. The burgher school embraces the same branches carried farther, with the addition of a little Latin, the study of which is not however universally enforced. The instruction is not gratuitous, except to the poor. The provision to be made by the parish, embraces, 1st, A salary to the schoolmaster, with a retired allowance for him in old age; 2d, A school-house, well aired and heated; 3d, Books, maps, models for drawing, collections in natural history, gymnastic apparatus, &c.; 4th, Aid to poor scholars. The fund is raised by contributions, levied on the inhabitants according to the amount of their property or the produce of their industry, and by moderate fees, which are not paid to the schoolmaster, but to the parochial managers. There are cantonal courts, and inspectors, who control and inspect all the schools in a canton; others for departments, with a wider authority; others, with still more extensive powers, for the provinces; and, above all, there is the minister of public instruction. In all the courts, councils, or commissions, exercising authority over the schools of any class, there are a few of the clergy, — Protestant and Catholic being admitted according as the scholars belong to the

one or the other church ; and great care is taken to prevent the slightest offence from being offered to the religious feelings of any party. The choice of the books in the elementary schools is left to the local committees. There are half-yearly examinations ; and the boys leaving school obtain certificates of their capacity and their moral and religious dispositions, which must be produced when they go to the communion, or enter into apprenticeship or service. The Prussian plan embraces also what are of essential importance, schools for training persons to act as teachers. There are thirty-four of these seminaries, where, besides studying the different branches of knowledge to be taught, they learn also the art of instruction.

A similar system of education is pursued in the boarding-schools of Germany. The following letter, written by a young gentleman who is personally known to me, and who, after studying at the high School of Edinburgh, went to Cassel and Gottingen, is lively and instructive.

‘ In Germany, as in England, boarding-schools are the principal seminaries of education, day-schools like those which we have in Edinburgh being seldom if ever to be met with. These boarding-schools are attended not only by the boys who reside with the teacher, but also by what are called day-boarders ; and masters for drawing, dancing, music, and other ornamental and useful accomplishments, teach at stated hours, as in similar establishments in this country. There are in Germany no such institutions

as our High School, where almost nothing but Latin is taught ; and indeed no one thinks of learning Latin, except those who are intended for the learned professions, and absolutely require a knowledge of it. Thus boys in general, instead of spending five or six years in a state of misery, are enabled to acquire an extensive stock of useful and practical information.

‘ In German boarding-schools, natural history is a prominent object of pursuit, and the boys are instructed in the outlines of Zoology, Ornithology, Entomology, and Mineralogy. This, I believe, is a branch of education never taught in seminaries of the same description in Britain ; but it is devoured by the learners on the Continent with the utmost avidity. There the teacher is not an object of fear, but the friend of his pupils. He takes them, about once a fortnight, to visit some manufactory in the neighborhood, where they are generally received with kindness, and are conveyed through the whole building by the owners, who seem to have pleasure in pointing out the uses of the various parts of the machinery, and in explaining to their juvenile visitors the different operations which are carried on. Suppose, for example, that an expedition is undertaken to a paper-mill : the boys begin their scrutiny by inspecting the rags in the condition in which they are at first brought in ; then they are made to remark the processes of cutting them, of forming the paste, of sizing the paper, &c., with the machinery by which all this is executed. On their return, they

are required to write out an account of the manufactory, of the operations performed in it, and of the manufactured article.

‘During the summer months, pedestrian excursions are undertaken, extending to a period of perhaps two, three, or four weeks. Everything worthy of attention is pointed out to the boys as they go along; and deviations are made on all sides, for the purpose of inspecting every manufactory, old castle, and other remarkable objects in the neighborhood. Minerals, plants, and insects are collected as they proceed, and thus they begin early to appreciate and enjoy the beauties of external nature. If they happen to be travelling in the mountainous districts of the Hartz, they descend into the mines, and see the methods of excavating the ore, working the shafts, and ventilating and draining the mine. Ascending again to the surface, they become acquainted with the machinery by which the minerals are brought up, the processes of separating the ore from the sulphur, and the silver from the lead, and the mode in which the former metal is coined into money.

‘Having become familiar with these operations, the boys next, perhaps, visit the iron-works, and here a new scene of gratification is opened up to their faculties. The furnaces, the principles of the different kinds of bellows, the method of casting the iron and forming the moulds, — everything, in short, is presented to their senses, and fully expounded to them. In like manner they are taken to the salt-works, and manufactories of porcelain, glass, acids,

alkalies, and other chemical bodies, with which that part of Germany abounds. If any mineral springs be in the neighborhood, these are visited, and the nature and properties of the water explained. In short, no opportunity is neglected, by which additions to their knowledge may be made. In this way, I may say without exaggeration, they acquire, in the course of a single forenoon, a greater amount of useful, practical, and entertaining knowledge, than they could obtain in six months at a grammar-school. For my own part, at least, I learned more in one year at Cassel, than during the five preceding which were spent in Edinburgh. This knowledge, too, is of a kind that remains indelibly written on the memory, and that is often recalled, in after life, with pleasure and satisfaction. How different were my feelings, when thus employed, from those which tormented me in that place of misery, the High School of Edinburgh ! *

‘These journeys not only have a beneficial effect on the mind, but also conduce, in no small degree,

* This letter was inserted in No. XXX of the Phrenological Journal, and the Editor here subjoins the following note : ‘ Our correspondent’s language is strong, but as we know it to be nothing more than the expression of honest and heartfelt indignation, we have allowed it to remain unmodified. We ourselves can never forget the *tedium vitæ* which attended us, during the lingering years in which we made a strenuous but unsuccessful attempt to overcome the difficulties of Latin Syntax at the High School of Edinburgh. Often did we envy the condition of boys who labored in the field for a scanty subsistence, but whose minds were free from the intolerable and spirit-breaking *incubus* of Latin grammar.’

to the growth and consolidation of the body. They are performed by short and easy stages, so as not to occasion fatigue.

‘ On their return home, the boys write an account of their travels, in which they describe the nature of the country through which they have passed, and its various productions, minerals, and manufactures. This is corrected and improved by the teacher. The minerals and plants which have been collected, serve at school to illustrate the lessons. The boys also go through a regular course of study, and receive lessons on Religion, Geography, French, and the Elements of Geometry. They are taught also the Elements of Astronomy; not merely the abstract particulars generally given in courses of geography in this country, relative to the moon’s distance, the diameter and period of revolution of the earth, and the like, but also the relative positions of the principal constellations. The figure of cubes, cones, octagons, pyramids, and other geometrical figures, are impressed upon the minds of the junior boys, by pieces of wood cut into the proper shapes. Latin is taught to those who particularly desire it. Poles are erected in the garden for gymnastics, and the boys receive every encouragement to take muscular exercise.

‘ Now, this method of education seems to me, — indeed I know experimentally that it *is*, — so vastly superior to that which is in vogue in Edinburgh, that I can never cease to wonder that the barbarisms of the dark ages should still be allowed to

exert their influence among us. In Germany, the boys enter the schools which I have described, at the age of eight or nine, and leave them when about fourteen or fifteen, at which period those intended for the learned professions enter the lyceums, preparatory to enrolling their names at the universities. Now, whether is it more rational for a boy, at that period of life to consume his valuable time in the dreary halls of the High School in acquiring scarcely one useful idea, or to employ it in the pursuit of substantial knowledge? For my own part, I shall always look back on the time which I spent in obtaining a superficial acquaintance with the Latin tongue as a hideous blank in my existence.'

In this country we have not enjoyed the preparatory training which fits the poorest peasant in Prussia for relishing instruction in the higher branches of science; and not only has education in useful knowledge been neglected, but prejudices are entertained by many excellent persons against it. Dr. DRUMMOND* has furnished an admirable answer to this objection. The passage is long, but its excellence is my apology for introducing it.

'You will perhaps,' says he, 'treat the idea of teaching matters of science to the industrious classes generally, as chimerical; but be not over hasty. It is still too common a persuasion, that knowledge

* See the excellent and eloquent 'Letters to a Young Naturalist on the Study of Nature and Natural Theology. By JAMES L. DRUMMOND, M. D.'" &c. Longman & Co. London, 12mo. pp. 342.

should be a monopoly, belonging solely to the learned and highly educated ; but there is a vast fund of information of the very highest value, which can be understood by persons who have had little previous tutoring, either in school or university. There is a great mass of knowledge which admits of easy explanation, and which can be comprehended by men of the most moderate education ; and why is it withheld from them ? Is the sun still to shine in the heavens, the planets to roll on in their orbits, the comets to shoot beyond imagination's wing into the regions of night, and yet our brethren of the human race, a very small portion excepted, to know no more about them than merely that they are the sun and stars ?

‘ Will it be said that the great truths of Astronomy can only be made plain to the understandings of those who are profound mathematicians and philosophers ? There are lengths in every science, indeed, which can only be gained by powerful talent and long and deep study ; but although it required a NEWTON to unfold the mysteries of the planetary motions, as guided and controlled by the law of gravitation, still these motions, and most of the sublime facts of astronomy, can be comprehended by the bulk of the people, from plain illustrations, given in plain and perspicuous language. But of this, and of nature in general, they are kept in profound ignorance. Simple truths, when simply explained, are more easily comprehended, I believe, than is commonly supposed ; and I feel satisfied,

that the task of teaching mankind, in general, such solid and various knowledge as would tend most powerfully to advance both civilization and morality, is anything but hopeless. Knowledge has been truly said by BACON to be power; and with equal, at least, if not greater truth, it may be asserted, that, when pursued with a reference to the God of all nature, it is virtue. There is no limit to the study of the Almighty in his works. All nature, from the north to the south, and from the east to the west, offers examples innumerable of the power and wisdom with which He works throughout the visible world before us. In the heavens we find suns the centres of systems, and an endless series of rolling worlds; and when we descend from the consideration of suns and systems, — of stars wheeling in their orbits with a velocity quicker than thought, — of worlds, compared with which the globe we inhabit is in magnitude as a mole-hill, — how delightful is it to find, that on this ball, insignificant as it is in comparison with thousands of the heavenly orbs, — the God of all displays himself in characters not less strong to the inquiring mind than in the boundless ocean of space.

‘Let us consider an *insect*, or let us study the laws which *direct a plant*; let us contemplate the *solar* system, or inquire into the history of an *ant-hill* or an *honey-comb*; the mind, the truly *valuable* part of the compound called Man, recognizes in the vast, as well as in the minute, and *vice versa*, the master mind, God, the omnipotent power, which

formed and which governs the mighty whole, in all its magnitudes, in all its minima. Paley observes in his *Natural Theology*, — a work which I can never too highly recommend to your notice, — that the works of nature want only to be contemplated. When contemplated, they have every thing in them which can astonish by their greatness; for, of the vast scale of operation through which our discoveries carry us, at one end we see an intelligent power arranging *planetary systems*, — fixing, for instance, the trajectory of *Saturn*, or constructing a ring of 200,000 miles diameter, to surround his body, and be suspended like a magnificent arch, over the heads of his inhabitants; and, on the other, bending a *hooked tooth*, concerting and providing an appropriate mechanism for the clasping and re-clasping of the filaments of the feather of the humming-bird! We have proof not only of both these works proceeding from an intelligent agent, but of their proceeding from the same agent; for, in the first place, we can trace an identity of plan, a connection of system, from *Saturn* to our own globe; and when arrived upon our globe, we can, in the second place, pursue the connection through all the organized, especially the animated, bodies which it supports. We can observe marks of a common relation, as well to one another, as to the elements of which their habitation is composed. Therefore, one mind hath planned, or at least hath prescribed a general plan for all these productions. One Being has been concerned in all.'

Knowledge of man himself, his mental endowments, his history, and his institutions, belongs to the class of useful knowledge. In addition to the sciences already mentioned, therefore, an useful education would embrace instruction in mental philosophy, geography, civil history, political economy, and religion. A taste or genius for poetry, music, painting, sculpture or languages, is bestowed by nature on particular individuals, and these branches of knowledge ought to be taught to those who desire them. They are of great value as means of elevating and refining human nature; but unless there is in the mind a decided genius for them, they ought not to be made the great objects of education, nor the business of life. The fine arts should be taught as enjoyments, and a relish for them encouraged; but in common minds, a considerable amount of moral and intellectual cultivation must *precede* their due appreciation.

Farther, as long as the present institutions of society exist, some knowledge of Greek and Latin is indispensable to young men who mean to pursue divinity, medicine, or law, as a profession.

Suppose, then, knowledge to be obtained, we may inquire into its uses. The first use of knowledge is the preservation of health. This, although greatly overlooked in established systems of education, is of paramount importance. Life depends on it, and also the power of exercising with effect all the mental functions. There are two modes of instructing an individual in the preservation of health, the

one informing him as a matter of fact concerning the conditions on which it depends, and admonishing him by way of precept to observe them, — the other, by expounding to his intellect the constitution of his bodily frame, and teaching him the uses of its various parts, the abuses of them, the relations established between his constitution and external objects, such as food, air, water, heat, cold, &c., and the consequences of observance or neglect of these relations. The former method addresses the memory chiefly, the latter the judgment. The former comes home to the mind, enforced only by the authority of the teacher; the latter is felt to be an exposition of the system of creation, and deeply interests at once the intellect and affections. The former affords rules for particular cases; the latter general principles, which the mind can apply in new emergencies.

Such instruction as is here recommended implies an exposition of the principles of anatomy and physiology.

The next use of knowledge is to enable us to exercise the mental faculties themselves, so as to render them vigorous and vivacious, and to promote their enjoyment.

The wonderful effect of a change from inactivity to bustle and employment is well known in common life, and is explicable only on the principle of strengthening the mind by a due amount of exercise. In nine cases out of ten, a visit to a watering place, or a journey through an interesting country,

restores health more by giving healthy excitement to the mind than by the water swallowed, or the locomotion endured. And it is well known that under strong excitement, weak and delicate persons will not only exert double muscular force, but even prove superior to the effects of miasma and contagion, to which, when unexcited, they would have been the first victims. In the army also, it is proverbial, that the time of fatigue and danger, is not the time of disease. It is in the inactive and listless months of a campaign, that crowds of patients pass to the hospitals. In both these cases, it is active exercise, giving strength to the mind, and, through it, healthy vigor to the body which produces the effect.

Now, education in real knowledge connects our sympathies with living beings and practical life ; it stimulates us to action, and furnishes us not only with the means of planning useful occupation, but with the materials for executing our plans. In such action there is the highest enjoyment.

The principles which I have hitherto advanced are applicable to all classes of human beings ; but the chief objects of the present lectures are the education, 1st, Of the industrious portion of the community, including all who live by their labor and talents, and do not belong to the learned professions ; and, 2dly, Of females of every rank, for whom no adequate means of instruction in useful knowledge are provided.

1. In regard to the education of the industrious classes. They constitute between thirteen and four-

teen out of the sixteen millions of population in Great Britain. The kind of education which they ought to receive will depend on the objects which we assign to their lives. If they have been created by Providence merely to toil and pay taxes, to eat, sleep, and transmit existence to future generations, a limited education may suffice : but if they are born with the full faculties of moral, intellectual, and religious beings ; if they are as capable, when instructed, of studying the works of God, of obeying his laws, of loving Him and admiring his institutions, as any class of the community ; in short, if they are rational beings, capable of all the duties, and susceptible of all the enjoyments, which belong to the rational character, then no education is sufficient for them which leaves any portion of their highest powers waste and unproductive. This is the light in which I regard them ; and the grand question presents itself, What mode of life, and what kind of pursuits, are best adapted to the nature of man ? In answering this question, we must keep in mind, that human nature consists of the following elements :

1st, An organized body, requiring food, exercise, and rest, in due proportions ;

2d, Animal propensities, requiring gratification ;

3d, Moral sentiments, demanding exercise and enjoyment ;

4th, Intellectual faculties, calculated to acquire knowledge, and intended to preside over the voluntary bodily functions, and the other departments of mind.

In the present state of society, the industrious classes, or great mass of the people, live in the habitual infringement of the most important laws of their nature. Life with them is spent to so great an extent in labor, that their moral and intellectual powers are stinted of exercise and gratification ; and hence their mental enjoyments are chiefly those afforded by the animal propensities : in other words, their existence is too little *rational* ; they are rather organized machines than moral and intellectual beings. The chief duty performed by their higher faculties is not to afford predominant sources of enjoyment, but to communicate so much intelligence and honesty, as to enable them to execute their labors skilfully and with fidelity. I speak, of course, of the great body of the laboring population : there are many individual exceptions, who possess higher attainments ; and I mean no disrespect even to this most deserving portion of society : on the contrary, I represent their condition in what appears to me to be a true light, only with a view to excite them to amend it.

Does human nature, then, admit of such a modification of the employments and habits of this class, as to raise them to the condition of beings whose chief pleasures shall be derived from their rational natures ? — that is, creatures whose bodily powers and animal propensities shall be subservient to their moral and intellectual faculties, and who shall derive their leading enjoyment from the latter. To attain this end, it would not be necessary that they should *cease*

to labor ; on the contrary, the necessity of labor to the enjoyment of life is imprinted in strong characters on the structure of man. The osseous, muscular, and nervous systems of the body, all require exercise as a condition of health ; while the digestive and sanguiferous apparatus rapidly fall in disorder, if due exertion is neglected. Exercise of the body is labor ; and labor directed to a useful purpose is as beneficial to the corporeal organs, and far more pleasing to the mind, than when undertaken for no end but the preservation of health. Commerce is rendered advantageous by the Creator, because different climates yield different productions. Agriculture, manufactures, and commerce, therefore, are adapted to man's nature, and I am not their enemy. But they are not the *ends* of human existence, even on earth. Labor is beneficial to the whole human economy, and it is a mere delusion to regard it as in itself an evil ; but the great principle is, that it must be moderate both in severity and duration, in order that men may enjoy, and not be oppressed by it. I say *enjoy*, it ; because moderate exertion is pleasure, and it has been only labor carried to *excess*, which has given rise to the common opinion that *retirement* from active industry is the goal of happiness. It may be objected that a healthy and vigorous man is not oppressed by ten or twelve hours' labor a-day ; and I grant that, if he be well fed, his physical strength may not be so much exhausted by this exertion as to cause him pain. But this is regarding him merely as a work-

ing animal. My proposition is, that after ten or twelve hours of muscular exertion a-day, continued for six days in the week, the laborer is not in a fit condition for that active exercise of his moral and intellectual faculties which alone constitutes him a rational being. The exercise of these powers depends on the condition of the brain and nervous system; and these are exhausted and deadened by too much muscular exertion. The fox-hunter and ploughman fall asleep when they sit within doors, and attempt to read or think. The truth of this proposition is demonstrable on physiological principles, and is supported by general experience; nevertheless, the teachers of mankind have too often neglected it. The first change, therefore, must be to limit the hours of labor, and to dedicate a portion of time daily to the exercise of the mental faculties.

So far from this limitation being unattainable, it appears to me that the progress of arts, sciences, and society, is rapidly forcing its adoption. Ordinary observers appear to conceive man's chief end, in Britain at least, to be to manufacture hard-ware, broad-cloth, and cotton goods, for the use of the whole world, and to store up wealth. They forget that the same impulse which inspires the British with so much ardor in manufacturing, will sooner or later inspire other nations also; and that, if all Europe shall follow our example, and employ efficient machinery and a large proportion of their population in our branches of industry, which they are fast do-

ing, the four quarters of the globe will at length be deluged with manufactured goods, only part of which will be required. When this state of things shall arrive, — and in proportion as knowledge and civilization are diffused it will approach, — men will be compelled, by dire necessity, to abridge their toil, because excessive labor will not be remunerated. The admirable inventions which are the boast and glory of civilized men, are believed by many persons to be at this moment adding to the misery and degradation of the people. Power-looms, steam-carriages, and steam-ships, it is asserted, have all hitherto operated directly in increasing the hours of exertion, and abridging the reward of the laborer! Can we believe that God has bestowed on us the gift of an almost creative power, solely to increase the wretchedness of the many, and minister to the luxury of the few? Impossible. The ultimate effect of mechanical inventions on human society appears not yet to be divined. I hail them as the grand instruments of civilization, by giving leisure to the great mass of the people to cultivate and enjoy their moral, intellectual, and religious powers.

One requisite to enable man to follow pursuits referrible to his higher endowments, is provision for the wants of his animal nature, viz. food, raiment, and comfortable lodging. It is clear that muscular power, intellect, and mechanical skill, have been conferred on him, with the design that he should build houses, plough fields, and fabricate commodities. But assuredly we have no warrant from rea-

son or revelation for believing that any portion of the people are bound to dedicate their whole lives and energies, aided by all mechanical discoveries, to these ends, as their proper business, to the neglect of the study of the works and will of the Creator? Has man been permitted to discover the steam-engine, and apply it in propelling ships on the ocean and carriages on railways, in spinning, weaving, and forging iron, — and has he been gifted with intellect to discover the astonishing powers of physical agents, such as are revealed by chemistry and mechanics, — only that he may be enabled to build more houses, weave more cloth, and forge more iron, without any direct regard to his moral and intellectual improvement? If an individual, unaided by animal or mechanical power, had wished to travel from Manchester to Liverpool, a distance of thirty miles, he would have required to devote ten or twelve hours of time, and considerable muscular energy, to the task. When roads and carriages were constructed, and horses trained, he could, by their assistance, have accomplished the same journey in four hours, with little fatigue; and now, when railways and steam-engines have been successfully completed, he may travel that distance, without any bodily fatigue whatever, in an hour and a half: And I ask, For what purpose has Providence bestowed the nine hours, which are thus set free as spare time to the individual? I humbly answer, For the purpose of cultivating his rational nature. Again; before steam-engines were applied to spinning and weaving, a

human being would have required to labor, say for a month, in order to produce linen, woollen, and cotton cloth, necessary to cover his own person for a year ; in other words, the twelfth part of the time of each individual would have been required to be spent in making raiment for himself, or, in case of a division of labor, a twelfth part of the population would have been required to be constantly engaged in this employment : by the application of steam, the same ends may be gained in a day. I repeat the inquiry, For what purpose has Providence bestowed the twenty-nine days out of the month, set free by the invention of the steam-engine and machinery ? These proportions are not stated as statistically correct, but as mere illustrations of a proposition, that every discovery in natural science, and invention in mechanics, has a direct tendency to increase the leisure of man, and to enable him to provide for his physical wants, with less laborious exertion.

The question recurs, whether, in thus favoring the human race, the object of Providence be, to enable only a portion of them to enjoy the highest luxuries, while the mass shall continue laboring animals ; or whether it be not to enable *all* to cultivate and enjoy their rational nature ?

In proportion as mechanical inventions shall be generally diffused over the world, they will increase the powers of production to such an extent, as to supply, by moderate labor, every want of man, and then the great body of the people will find themselves in possession of reasonable leisure, in spite of

every exertion to avoid it. Great misery will probably be suffered in persevering in the present course of action, before their eyes shall be opened to this result. The first effect of these stupendous mechanical inventions threatens to be to accumulate great wealth in the hands of few, without proportionally abridging the toil, or adding greatly to the comforts of the many. This process of elevating a part of the community to affluence and power, and degrading the rest, threatens to proceed till the disparity of condition shall have become intolerable to both, the laborer being utterly oppressed, and the higher classes harassed by insecurity. Then, probably, the idea may occur, that the real benefit of physical discovery is to give leisure to the mass of the people, and that leisure for mental improvement is the first condition of true civilization, knowledge being the second. The science of human nature will enable men at length to profit by exemption from excessive toil; and it may be hoped that, in the course of time, the notion of man being really a rational creature, may meet with general countenance, and that sincere attempts may be made to render all ranks prosperous and happy, by institutions founded on the basis of the superior faculties.*

* I regret to learn that in some districts of England, the operatives have resolved to abridge their labor, but to permit no diminution of their pay: they have demanded for eight hours' work the wages hitherto paid for the labor of twelve hours. This proposal is unreasonable and unjust, and cannot be successful. They ought in the first year to demand one hour's leisure and abate one hour's wages. If they applied that hour

The same means will lead to the realization of practical Christianity. An individual whose active existence is engrossed by mere bodily labor, or by the pursuits of gain or ambition, lives under the predominance of faculties that do not produce the perfect Christian character. The true practical Christian possesses a vigorous and enlightened intellect, and moral affections glowing with gratitude to God and love to man; but how can the people at large be enabled to realize this condition of mind, if stimulus for the intellect and the nobler sentiments be excluded by the daily routine of their occupations?

If the notions now advocated should ever prevail, it will be seen that the experience of past ages affords no sufficient reasons for limiting our estimate of man's capabilities of civilization, because he is yet only in the infancy of his existence. I traced out the long and gradual preparation of the globe for man: he appears to be destined to advance only by stages to the highest condition of his moral and intellectual nature, and he is yet only in the beginning of his career. Although a knowledge of external nature, and of himself, are indispensable to his ad-

well, and acted peacefully and in concert, the natural increase of population and capital would in time create an increased demand for their labor, and their wages would rise. When this happened, they might abate another hour's labor and wages, and the same causes would again restore the rate of wages. This process might be repeated till the hours of labor were reduced to eight or nine per day, which would leave ample leisure for mental cultivation and enjoyment. If this shall prove impracticable, it is difficult to foresee any improvement in the condition of the great body of the people.

vancement to his true station as a rational being, yet 400 years have not elapsed since the arts of printing and engraving were invented, without which, knowledge could not be disseminated through the mass of mankind; and, up to the present hour, the art of reading is by no means general over the world — so that, even now, the *means* of calling man's rational nature into activity, although discovered, are but very imperfectly applied. It is only five or six centuries since the mariner's compass was discovered in Europe, without which even philosophers could not ascertain the most common facts regarding the size, form, and productions of the earth. It is only 340 years since one-half of the habitable globe, America, became known to the other half; and considerable portions of it are yet unknown even to the best informed inquirers. It is little more than 200 years since the true theory of the circulation of the blood was discovered; previously to which it was impossible even for physicians to form any correct idea of the uses of many of man's corporeal organs, and of their relations to external nature. It is only between forty and fifty years since the true functions of the brain and nervous system were discovered; before which we possessed no adequate means of becoming acquainted with our mental constitution, and its adaptation to external circumstances and beings. It is only fifty-seven years since the study of chemistry, or of the physical elements of the globe, were put into a philosophical condition by Dr. PRIESTLEY's discovery of oxygen; and hydrogen

was discovered so lately as 1766, or sixty-eight years ago. Before that time, people in general were comparatively ignorant of the qualities and relations of the most important material agents with which they were surrounded. At present this knowledge is still in its infancy, as will appear from an enumeration of the dates of several other important discoveries. Electricity was discovered in 1728, galvanism in 1794, gas-light about 1798; and steam-boats, steam-looms, and the safety-lamp, in our own day.

It is only of late years that the study of geology has been seriously begun; without which we could not know the vast changes in the physical structure of the globe, a matter of much importance as an element in judging of our present position in the world's progress. This science also is in its infancy. An inconceivable extent of territory remains to be explored, from the examination of which the most interesting and instructive inferences will probably present themselves. The mechanical sciences are at this moment in full play, putting forth vigorous shoots, and giving the strongest indications of youth, and none of decay.

The sciences of morals and of government are still in the crudest condition.

In consequence of this profound ignorance, man, in all ages, has been directed in his pursuits, by the mere impulse of his strongest propensities, formerly to war and conquest, and now to accumulating wealth without, having framed his habits and institutions in conformity with correct and enlightened views of his

own nature, and its real interests and wants. Up to the present day the mass of the people in every nation have remained essentially ignorant, the tools of interested leaders, or the creatures of their own blind impulses, unfavorably situated for the development of their rational nature. They, constituting the great majority, of necessity influence the condition of the rest: — *Finally*, the arts and sciences seem to be tending towards abridging human labor, so as to force leisure on the mass of the people; while the elements of useful knowledge are so rapidly increasing, the capacity of the operatives for instruction is so generally recognized, and the means of communicating it are so powerful and abundant, that a new era may fairly be considered as having commenced.

It has sometimes appeared to me that divines, with the best intentions, have obstructed the progress of human improvement by coloring too highly the representations of man's depravity and weakness, and urging in too strong terms his natural incapacity for any good. These views repress exertion, and foster indolence and ignorance. Dr. Chalmers entertains more favorable opinions of our nature; and I rejoice in calling your attention to the eloquence as well as the truth of the following remarks. 'We might not know the reason,' says he, in his *Bridgewater Treatise*, 'why, in the moral world, so many ages of darkness and depravity should have been permitted to pass by, any more than we know the reason why, in the natural world, the trees of a for-

est, instead of starting all at once into the full efflorescence and stateliness of their manhood, have to make their slow and laborious advancement to maturity, cradled in storms, and alternately drooping or expanding with the vicissitudes of the seasons. But though unable to scan all the cycles either of the moral or natural economy, yet we may recognize such influences at work, as, when multiplied and developed to the uttermost, are abundantly capable of regenerating the world. One of the likeliest of these influences is the power of education, to the perfecting of which so many minds are earnestly directed at this moment, and for the general acceptance of which in society, we have a guarantee in the strongest affections and fondest wishes of the fathers and mothers of families.' (Vol. i. p. 186.)

Add to these reasons, for hoping well of our nature, the discovery, that the *capacity* for civilization may be increased by exercising the moral and intellectual faculties, in conformity with the laws of organization, a fact which phrenology brings to light,* and the happiest results may be anticipated in regard to human improvement. History represents man as having been hitherto a blind, passionate, fighting animal, rather than a rational and moral being; and even now we do not feel entirely secure against a recur-

* The power of manifesting the mental faculties increases in proportion to the size and improvement in the constitution of the organs by means of which they act; and exercise of these organs has a tendency both to increase their volume and ameliorate their quality.

rence of such atrocious enormities. Yet fighting and plundering are calculated to gratify only a few of the human faculties, and these the lowest in the scale ; while they outrage the higher and better feelings. In proportion as the knowledge of our true good, and of the real relations of our nature to the external world, shall increase, the appetite for war will diminish ; and it must entirely cease whenever Christian morality shall be generally acknowledged to be the practical rule which man is bound, and also most interested for the sake of his own happiness, to obey.

The objection has been stated, that, even in the most improved condition of the great body of the people, there will still be a considerable proportion of them so deficient in talent, so incapable of improvement, and so ignorant, that their labor will be worth little ; that, as they must obtain subsistence, no alternative will be left to them but to make up by long hours of exertion what they want in skill ; and that their long-continued labor, furnished at a cheap rate, will affect all the classes above them, and indeed prevent the views now taken from ever being generally realized. This objection resolves itself into the proposition, That the people have been destined by the Creator to be laboring animals, and that, from their inherent mental defects, they are incapable generally of being raised to any more honorable station ; which is just the great point at issue between the old and the new philosophy. If mankind at large (for the industrious classes con-

stitute so very great a majority of the race, that I may be allowed to speak of them as the whole,) had been intended for mere hewers of wood and drawers of water, I do not believe that the moral and intellectual faculties which they unquestionably possess, would have been bestowed on them; and as they do enjoy the rudiments of all the feelings and capacities which adorn the highest of the race, and as these faculties themselves are improvable, I do not subscribe to the doctrine of the permanent incapacity of the race. I consider them, in successive generations, quite capable of learning to act as rational beings; and whenever the great majority of them shall have acquired a sense of the true dignity of their nature, and a relish for the enjoyments afforded by their higher capacities, they will become capable of so regulating the supply of labor in reference to the demand, as to obtain the means of subsistence in return for moderate exertion. In short, I hope that few of the imbeciles alluded to in the objection will exist; and that these few will be carried along by the multitude of generous and enlightened minds which will exist around them. The Creator is wise and good; and as He has bestowed moral and intellectual faculties on all sane individuals, it cannot be his intention that the majority of mankind should grub for ever in the mire of mere animal gratification.

At the same time, there is great force in that objection, considered in reference to the present and several succeeding generations. In throwing out

the views contained in these lectures, I embrace centuries of time. I see the slow progress of the human race in the past, and do not anticipate miracles for the future. If a sound principle is developed — one having its roots in nature — there is a certainty that it will wax strong and bear fruit in due season ; but that season, from the character of the plant, is a distant one. All who aim at benefiting mankind, ought to keep this truth constantly in view. Almost every scheme is judged of by its effects on the living generation ; whereas, no great fountain of happiness ever flowed clear at first, or yielded its full sweets to the generation who discovered it. The world scarcely yet enjoys the benefits of Christianity ; it is only developing its power, and hundreds of years may elapse before its blessed spirit shall fully pervade all the transactions of human life. I do not expect to see the principles advocated in these lectures generally reduced to practice in this age ; but if they be founded in nature, they *will* in time vindicate their own might.

It is now an established principle in political economy, that Government ought not to interfere with industry. This maxim was highly necessary when governors were grossly ignorant of all the natural laws which regulate production and the private conduct of men ; because their enactments, in general, were then abortions ; they often did much harm, and rarely good. But if the science of human nature were once fully and clearly developed, it is probable that this rule might, with great advantage,

be relaxed, and that the legislature might considerably hasten beneficial results, by adding the constraining authority of human laws to enactments already proclaimed by the Creator. Natural laws do exist, and the Creator punishes if they are not obeyed. The evils of life are these punishments. Now, if the great body of intelligent men in any state saw clearly that a course of action pursued by the ill-informed of their fellow-subjects was the source of continual suffering not only to the evil-doers themselves, but to the whole community, it appears to me allowable, that they should stop its continuance by legislative enactment. If the majority of the middle classes resident in towns were to petition Parliament, at present, to order shops in general to be shut at eight o'clock, or even at an earlier hour, to allow time for the cultivation of the rational faculties of the men and women engaged in them, it would be no stretch of power to give effect to the petition: that is to say, it would lead to no evil, if the ignorant and avaricious were prevented by law from continuing ignorant, and forcing all their competitors in trade to resemble them in their defects. If the Creator hath so constituted the world that men may execute all necessary business and still have time to spare for the cultivation of their rational faculties, any enactment of the legislature calculated to facilitate arrangements for accomplishing both ends, would be beneficial and successful, just because it was in accordance with nature; although the prejudiced and ignorant of the present generation would

complain, and probably resist it. This principle of interference would go much farther : its only limits seems to me to be the boundaries of the real knowledge of nature : as long as the legislature enacts in conformity with nature, the result will be successful. At present, ignorance is too extensive and prevalent to authorize Parliament to venture far.

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LECTURE III.

2. LET us now turn our attention to the Female sex, and inquire into the provision made for their education. I regard the great business of female life to be the nurture and rearing of children, and the due management of the domestic circle. These occupations are equally important to women as professions are to men ; and, under a proper system of education, women ought to be taught every species of knowledge, and instructed in every accomplishment, which may directly contribute to the proper discharge of the duties attendant on them. At the earliest dawn of intellect and feeling, the little girl manifests this tendency of her nature. The doll is then the most absorbing object of interest that can be offered to her attention. In maturer years the mimic infant is laid aside, but the feelings which found delightful expression in the caresses bestowed on it are not extinct. The nature of the woman is the same as that of the girl : the conventional fashions of society may teach her to draw a veil over her affections ; but they glow internally, and it will still be her highest gratification to give them scope in an honourable and useful field. If this be wo-

man's nature, her education ought to bear direct reference to the cultivation and direction of it: in short, maternal and domestic duties should be held out as the leading objects of female existence, and her training should proceed in harmony with this great end. High physical, moral, and intellectual qualities, are required for the due fulfilment of these purposes; and I have no hesitation in saying that no occupations allotted to man afford a wider field for the exercise of the best elements of mind, than those here assigned to woman.

The physical quality next in importance in a woman, viewed as a mother, is health. The human body is composed of a variety of systems of organs, each having particular functions to perform; and health is the result of the favorable action of the whole, in harmonious combination. Every organ is disposed, other circumstances being the same, to act with a degree of energy in proportion to its size; and as a disease is the consequence either of under-action, or of over-action, of the organs, their proportion to each other in size is a point of fundamental importance in regard to health. By the appointment of a wise Providence, a female figure of the finest proportions for symmetry and beauty, is, *cæteris paribus*, the most favorably constituted for healthy action. If the carriage of the body be erect, and the motions be easy and graceful, these are indications that the bones are solid and the muscles energetic,—that the blood is well nourished and well oxygenized, and that it circulates freely. If

the countenance beam with intelligence and goodness, there is a predominance of the moral and intellectual regions of the brain, and the individual in birth and constitution is one of nature's true nobility. Such a woman, if her intellect were instructed in the laws of physiology, so that she might deliberately maintain her high qualities unimpaired through life, would be, as a mother, a treasure of the highest value.

For many years, the lives of children depend almost exclusively on the care of the mother. Young women, therefore, ought to be taught not only how to regulate their own habits so that they may preserve their health and vigor but also how to treat children, both as physical and mental beings. This information would be attended with great advantages, whether they subsequently discharged maternal duties or not. The very study of the structure, functions, and proper treatment of human beings, with the view of exercising kindly affection towards them, would be delightful in itself; and the young students, if they did not become mothers, would at least be sisters, aunts, or friends, and could never want opportunities for the practice of their knowledge. Information of this description is not neglected by women with impunity. It appears by the London bills of mortality, that between a fourth and a fifth of all the children baptized, die within the first two years. There is no example among the more perfect of the lower animals, of such a vast mortality of their young, where external violence is withheld; so that woman,

with reason, and morality, and religion as her gifts, makes a poor figure in her maternal character, contrasted with the inferior creatures acting under the guidance of pure instinct. Much of this mortality arises from imperfect health in the parents themselves, so that the children are born with only a feeble embryo of life: but much is also owing to injudicious treatment after birth.

One important branch of female instruction, therefore, ought to be, the treatment of children as physical beings. Lectures should be instituted to communicate this information, and the basis of it ought to be anatomy and physiology.* The minutiae of these sciences need not be treated of, but all the leading organs and their uses should be explained. It is a great error to suppose that this study is necessarily shocking and indelicate. It is so only in the eyes of ignorance and prejudice. Lascivious de-

* 'It is to the deplorable ignorance, even of persons of education, with respect to the structure and functions of the human body, and every thing which relates to health and disease, that we must ascribe the inability of such persons to distinguish between the rational practitioner and the quack. The higher classes, especially, hold regular physic and physicians of small account. Their idea of medicine is, that it is an art, a craft, a kind of *knack* (to use a somewhat inelegant but not inexpressive word,) which some people are born with, or attain without study and by the mere felicity of nature. If anatomy and physiology formed part of a good education, physic would reach its proper rank. But those who hang with ecstasy over stamens and pistils, or fragments of granite and spar, never seem to consider how noble and useful a subject for contemplation exists in their own frames.' — *Foreign Quarterly Review*, No. xxiii. p. 119.

scriptions of the *abuses* of the bodily functions are extremely injurious to the youthful mind ; and the enemies of knowledge have represented this to be the instruction which I recommend. Nothing can be more unlike it. The Creator has constituted every organ of the body, and we contemplate His workmanship in studying its structures and uses. To call this indelicacy, is to libel Eternal Wisdom. The Creator has taught the inferior creatures to rear their young successfully by instinct ; but he has not conferred this guide on the human mother. One of two conclusions, therefore, appears to follow. He has intended either that she should use her faculties of observation and reflection, in acquiring all the knowledge requisite for the proper treatment of her offspring, or that she should recklessly allow a large proportion of them to perish. One or other of these conclusions is really inevitable ; because, as He has denied her instinct, and as she cannot obtain knowledge to supply its place, without application of her intellect to the study of the laws of nature, which instinct prompts the lower creatures to obey without knowing them, the Creator must have intended either that she *should* study these laws, or give up her offspring in vast numbers to destruction. The latter result actually happens to the enormous extent just mentioned ; and, if it be the necessary consequence of the Creator's gift of reason, in place of instinct, to women, I submit to condemnation ; but if it be the natural effect of their not having employed that reason in a proper direction, I say that He has com-

manded them to study His works. If this conclusion be just, we may rest assured that they may safely, and in perfect consistency with feminine delicacy, study the Creator's designs, power, and goodness, in the structure, functions, and adaptations of the human body ; and that they will not find their higher faculties outraged, but exalted and refined, by the knowledge which will thus be revealed. PALEY draws numerous arguments and illustrations from anatomy in his *Treatise on Natural Theology*, and I have now before me a work by Mrs. PHELPS, entitled 'Lectures to Young Ladies, delivered to the pupils of Troy Female Seminary,' United States (Boston, 1833,) in which the pious and enlightened authoress does not scruple to introduce the kind of instruction here recommended.

It has been said that it is better to call in the aid of a physician, than to study medicine for one's self. But I do not propose that young persons in general should study medicine. My recommendation is simply, that they should be taught the structure and functions of the body with a view to preserving their own health, and to enable them to act like rational patients in the hands of a skilful physician, when they are so unfortunate as to lose it. Every medical practitioner, of a humane and honest mind, laments the unnecessary suffering and expense to which he sees his patients exposed through lack of this information. The publication and sale of works like Dr. MACAULAY's *Popular Medical Dictionary* show pretty clearly that my views on this subject are by no means singular.

It may be imagined that rules for the preservation of health may be taught without anatomy being studied. But all such instruction is empirical. The authority of any rule of health is the fact, that Nature is constituted in such and such a manner, and will act in her own way, whether attended to or not, — for good if obeyed, and for evil if opposed. This authority is rarely comprehended without instruction concerning the foundation on which it rests. The rule otherwise resides in the memory rather than in the understanding; and the possessor has no power of modifying her conduct, and adapting it judiciously to new circumstances. She knows the rule only, and is at a loss whenever any exception or new combination not included in it presents itself. The Professor of Scots Law most acutely and judiciously directed his students, when reading about the law of title-deeds, to take the parchments themselves into their hands, and to look at them, — assuring them, that familiarity with their mere physical appearance would aid the memory and judgment in becoming acquainted with the doctrines relative to their effects. Philosophy and experience equally confirm the soundness of this observation; and it applies, in an especial manner, to rules relative to health. When a good description of the respiratory organs has been given to a young woman, she understands much better, feels more deeply, and remembers much longer and more clearly, the dangerous consequences of exposing the throat and breast to a stream of cold air, or to a sudden change

of temperature, than when she has only heard or read precepts to avoid these and similar practical errors.

Another leading branch of female education ought to be that kind of knowledge which will fit a woman to direct successfully the moral and intellectual culture of her children. This embraces a vast field of useful and interesting information. If we should ask any mother, who has not studied mental philosophy, to write out a catalogue of the desires, emotions, and intellectual powers which she conceives her children to be endowed with;—to describe the particular objects of each faculty; its proper sphere of action; the abuses into which it is most prone to fall; and also the best method of directing each to its legitimate objects, within its just sphere, so as best to avoid hurtful aberrations,—we know well that she could not execute such a task. I entreat any lady, who has a family, and who has derived no aid from mental philosophy, to make the experiment for her own satisfaction. She will discover in her own mind a vast field of ignorance, of which, before making the trial, she could not have conjectured the extent. I have time only to say that I regard the earnest and practical study of Phrenology, or, in other words, of the primitive faculties and their scope of action, as an indispensable step in practical education. There are few mothers who do not sometimes discover wayward feelings, particular biases, or alarming tendencies, breaking out in their children, when they least ex-

pect them ; and I appeal to their own consciousness, whether they have not, in alarm and bewilderment, wondered what these could be, and lamented their own inability to comprehend or to guide them. Mothers who have experienced this darkness, and have subsequently studied Phrenology, have appreciated the value and importance of the light which it shed on their practical duties. I am not pleading the cause of Phrenology for the sake of making proselytes. My proposition is general, that a mother cannot train faculties without knowing their nature, objects and sphere of activity ; and if any woman can find practical information on these points without the aid of Phrenology, I earnestly recommend to her to seek out and to apply it. To Phrenology I owe the views of human nature and its capabilities, which have most benefited and delighted my own mind ; but I am far from pressing it on others, who prefer to consider the mind as if it had no known connexion with organization. If nature *has* connected it with organs, such individuals will meet with their reward in disappointment.

Let us now suppose a mother to be instructed concerning the physical constitution and mental faculties of her children ; she will next require to become acquainted with the objects in the external world to which these faculties are related. We are told that it is a ‘delightful task to rear the tender thought, and teach the young idea how to shoot.’ The power of doing so seems to imply some knowledge in the teacher of the direction in which the

mind will shoot most successfully, and of the objects to which it is related ; in other words, such acquaintance with the external world as is calculated to excite the moral sentiments and intellect of the child, and operate on the happiness of the future man or woman. In female training, the communication of this information is deplorably neglected. It implies the study of the elements of Chemistry, Natural History, and Natural Philosophy, as well as familiar acquaintance with the social institutions of our own country, and the civil history of nations. If an ill-informed mother have an acute and clever child, how is she puzzled by its questions ! and if she possess any natural sensibility, how keenly does she feel and regret her own ignorance, when it forces her to evade instead of furnishing rational and instructive answers to its ingenious and interesting inquiries !

The mother has it in her power to exert a great and permanent influence on the character of her children : she makes the deepest impressions, and supplies the earliest ideas, that enter their minds ; and it is of the utmost importance to society at large that she should be well qualified for so important a duty. Children who are not gifted with originating powers of mind, which is the case with nineteen out of every twenty, reflect slavishly, when they grow up, the impressions and ideas which their mothers, nurses, companions, teachers, and books have infused into them ; and of these the authority of the mother is not the least. ‘ It was said by one of the most extraordinary of men (NAPOLEON,) who was

himself, as he avowed, principally indebted to maternal culture for the unexampled elevation to which he subsequently rose, that the future good or bad conduct of a child depends entirely upon the mother.* Let women remember, therefore, that they may sow the seeds of superstition, prejudice, error, and baneful prepossession; or of piety, universal charity, sound sense, philosophical perception, and true knowledge, according to the state of their own attainments; and let them also ponder well the fact, that the more thoroughly destitute they are of all sound information, and of all rational views of mind and its objects, the less they are aware of their deficiencies, and of the evils which their ignorance is inflicting on another generation.

In addition to the branches of solid instruction before narrated, women ought to be taught such elegant and refined accomplishments as they individually are capable of learning. These throw over the domestic circle a charm which cannot be too highly prized. What I condemn is, the teaching of music, drawing, and conventional manners, to the exclusion of all other kinds of knowledge. An enlightened refined and elegant woman, is the most lovely and perfect of animated beings; and no philosopher, in recommending useful instruction, would desire to see abated, by one iota, the graces which adorn the female character.

* MOORE'S notices of the Life of BYRON, 12mo. vol. ii. p. 35. NAPOLEON'S proposition is too general. The father's qualities also influence the child; but those of the mother do so still more powerfully.

These views may appear to be so consonant with reason that they support themselves; but as I am addressing a popular assembly, I solicit permission to strengthen them by the opinions of three contemporary authors.

The evils attendant on the imperfect education of females belonging to the upper ranks, are forcibly expounded in a late number of the *Foreign Quarterly Review* (No. xxiii. p. 127.). ‘Nothing,’ says the Reviewer, ‘is more remarkable in the present age of mental excitement, than the care with which, by most of the prevalent customs and a system of fashionable education, the minds of the generality of females are consigned to inactivity and utter uncompanionable insipidity. Whilst the expression of almost every elevated feeling is repressed as inconsistent with refinement, every artificial want, every habit of selfish gratification, is as much as possible indulged. Active exercise in the open air, cheerful country walks, a joyful participation of the hearty pleasures of any society, in which every movement is not taught by the posture-master, or conversation conducted according to the rules laid down in books professing to teach female duty and behavior;—all this would be inconsistent with the general aim of all classes to imitate the manners and habits of the highest. All kind of reading, except of works the most frivolous, is considered ungentle, or, at least, singular; and any display of deep and unsophisticated sentiment excites universal pity. The beauties of nature, the triumphs of science, the mi-

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racles of art, excite no more than a languid expression of wonder. To apply the mind to read or understand such things, would destroy the apathetic elegance which those desire to preserve, who still believe knowledge to be a very good thing for persons who live by it. With as much care as the natural proportions of the female figure are destroyed by stays made upon abstract principles, is the mind cribbed and cabined by custom and fashion. Then, universal ambition leads to universal difficulties as to fortune; and the only serious duty as to daughters is, to obtain an advantageous settlement, which, whether gained or missed, is too often thus the cause of cureless discontent, injured health, and all the nervous maladies incidental to an ill-managed mind and infirm body.

‘The system by which young ladies are taught to move their limbs according to the rules of art, to come into a room with studied diffidence, and to step into a carriage with measured action and premeditated grace, are only calculated to keep the degrading idea perpetually present, that they are preparing for the great market of the world. Real elegance of demeanor springs from the mind: fashionable schools do but teach its imitation, whilst their rules forbid to be ingenuous. Philosophers never conceived the idea of so perfect a vacuum as is found to exist in the minds of young women who are supposed to have finished their education in such establishments. If they marry husbands as uninformed as themselves, they fall into habits of indo-

lent insignificance without much pain : if they marry persons more accomplished, they can retain no hold of their affections. Hence many matrimonial miseries, in the midst of which the wife finds it a consolation to be always complaining of her health and ruined nerves.' — (Ib. pp. 128—9.)

'Knowledge,' says Mrs. John Sandford, 'should be appreciated by women for its own sake, and not merely as a distinction. The superiority of cultivated women is in everything very apparent. They have been accustomed to think and to discriminate, and their opinion is not a mere momentary impulse. Their sphere, too, is enlarged ; they are not so much actuated by selfish feelings, or so liable to receive partial, and consequently erroneous, impressions. What an easy dupe to empiricism or design is a half-educated woman ! With sufficient acquirements to be vain, and sufficient sensibility to be soon imposed on, she may be easily seduced from principles which she has received only on the authority of others, and which she is therefore ill prepared to defend.' — 'Disorder is the accident, not the consequence, of talent ; and as it is the more conspicuous, so it is the less excused, when accompanied with mental superiority.'

I conclude this branch of the subject with the following just and eloquent observations of an American authoress, Mrs. Emma Willard. It forms part of an admirable Address which she presented, in 1819, to the Legislature of New York, proposing a plan for improving female education ; and which Address has

led to the formation of an extensive establishment at Troy, of which she is now the head. ‘Not only,’ says she, ‘has there been a want of system concerning female education, but much of what has been done has proceeded upon mistaken principles. One of these is, that, without a regard to the different periods of life, proportionate to their importance, the education of females has been too exclusively directed to fit them for displaying to advantage the charms of youth and beauty. Though it may be proper to adorn this period of life, yet it is incomparably more important to prepare for the serious duties of maturer years. Though well to decorate the blossom, it is far better to prepare for the harvest. In the vegetable creation, nature seems but to sport when she embellishes the flower, while all her serious cares are directed to perfect the fruit.

‘Another error is, that it has been made the first object in educating our sex, to prepare them to please the other. But reason and religion teach, that we too are primary existences ; that it is for us to move, in the orbit of our duty, around the Holy Centre of Perfection, the companions, not the satellites of men ; else, instead of shedding around us an influence that may help to keep them in their proper course, we must accompany them in their wildest deviations.

‘I would not be understood to insinuate (continues Mrs. Willard,) that we are not, in particular situations, to yield obedience to the other sex. Submission and obedience belong to every thing in the

universe, except the Great Master of the whole. Nor is it a degrading peculiarity to our sex, to be under human authority. Whenever one class of human beings derives from another the benefits of support and protection, they must pay its equivalent, obedience. Thus, while we receive these benefits from our parents, we are all, without distinction of sex, under their authority : when we receive them from the government of our country, we must obey our rulers ; and when our sex take the obligations of marriage, and receive support and protection from the other, it is reasonable that we too should yield obedience. Yet it is neither the child, nor the subject, nor the wife, under human authority, but in subservience to the divine. Our highest responsibility is to God, and our highest interest to please him ; therefore, to secure this interest, our education should be directed.

‘ Neither would I be understood to mean, that our sex should not seek to make themselves agreeable to the other. The error complained of is, that the taste of men, whatever it might happen to be, has been made a standard for the formation of the female character. In whatever we do, it is of the utmost importance that the rule by which we work be perfect ; for, if otherwise, what it is but to err upon principle ? A system of education which leads one class of human beings to consider the approbation of another as their highest object, teaches that the rule of their conduct should be the will of beings imper-

fect and erring like themselves, rather than the will of God, which is the only standard of perfection.'

On the whole subject of education, then, I remark, that if society were organized for instructing the people, and providing time and means for the exercise of their moral and intellectual faculties, as effectually as it is for paying taxes or fighting, the progress of civilization and the amount of human enjoyment would be greatly increased. The Lord Chancellor lately most justly observed, that until the people shall take the matter of education with spirit and energy into their own hands, and with a resolution to accomplish something, Government will be incapable of doing any essential service to the cause. The association at whose request these lectures have been delivered, has been formed in anticipation of the recommendation implied in this remark. I solicit your attention to its objects and constitution, and hope that if these merit your approbation, you will favor it with your support.

ACCOUNT OF THE EDINBURGH ASSOCIATION FOR
PROCURING INSTRUCTION IN USEFUL AND EN-
TERTAINING SCIENCE.

In the autumn of 1832, a number of individuals of this city, chiefly engaged in practical business, who had attended my Summer Course of Lectures on Phrenology, formed themselves into an association,

for the purpose of obtaining instruction in Useful and Entertaining Science. Associations for similar purposes have been founded in other cities, and have been partially successful, but not to so great an extent as might have been anticipated. The London University, for example, is an institution for affording scientific education, particularly to the sons of persons in the middle class in the metropolis, who are not sufficiently rich to afford the expense of a residence at Cambridge or Oxford ; but it has not met with the encouragement which its utility and importance deserved. In most of the great towns of England, there are literary and scientific institutions ; but they also have been attended with only limited success. In the absolute amount of instruction conveyed to the people, they have fallen greatly short of what they promised to accomplish at their foundation. In tracing the causes of these shortcomings, two in particular attract our notice. In these instances, large sums of money have been collected by subscription from wealthy individuals, and expended in buildings, libraries, and museums. The leading founders and directors have been rich merchants, patriotic landed proprietors, and a few men of science. They have provided money, lecture rooms, apparatus — in short, everything physical ; but they have not been equally fortunate in furnishing audiences to fill the lecture-rooms, and students to peruse the books piled on the shelves of their libraries. Whence has this last and important deficiency arisen

Some writers on religious and scientific education maintain that men in general have appetites sufficiently strong to impel them, without external excitement, to seek a supply for the wants of their animal nature. Hunger and thirst press so keenly on the feelings, that the most thoughtless of mankind are prompted, by their importunity, to exert themselves to procure food. The piercing winds and the winter's frost force them to provide raiment. But it is argued that the case is quite different with their moral and intellectual nature. The human being, deeply buried in ignorance, has no painful consciousness of his condition; he is stimulated by no self-acting desires to feed and clothe his mind; he will remain for ever mentally destitute and naked, the passive victim of his animal feelings, unless excited by some motives operating from without.

The authors who espouse these principles, maintain the necessity of established churches to teach religion, and of endowed universities to impart knowledge of philosophy and science. They represent clergy and professors paid by the state, as staff-officers and an army of aggression appointed to wage war on public apathy and ignorance. It is said to be the duty of the State Clergy to go from house to house, and invade the dormant inmates; to rouse them with the din of knowledge, and urge them to the banquet of religion. Having created an appetite for piety, these public heralds are supposed to deal forth food fitted to every palate, and thus to christianize the world. Professors and

teachers, I presume, are expected to follow a similar course of action.

While there is some truth in the foregoing representation, it does not appear to me to be entirely correct. The capacities of the mass of the people for instruction have never been fairly tried. By their external circumstances they have been trained to fight, to labor, or to dissipate; but never to seek enjoyment in the cultivation of their moral and intellectual powers. It would be as reasonable to state as an objection to human nature in general, that an individual trained as a divine has little relish for agriculture or for law, as to urge as a plea against it, that laborers and artisans, whose mental powers are blunted by their occupations, have no taste for literature or science. Besides, the great body of the people have never had wholesome mental food presented to them, and their defect of appetite is prematurely assumed. If the foregoing views of the constitution of the mind and its adaptations be correct, the objects best calculated to rouse the intellect and delight the moral sentiments are those presented by Nature in her various departments; and knowledge of this kind has never been offered to the people and rejected. Drowsy and incapable teachers have too often administered husks and rubbish to the public mind; and, because it has revolted at the dose, it has been charged with a distaste for all useful information. If the minds of practical men *could* have taken a deep and abiding interest in Greek, Latin, school logic, and metaphysics, I should

have despaired of the progress of the race ; and yet, until almost the present day, the learned had little else to offer to their notice. That they have turned with distaste from these studies, is no better proof that they will dislike all knowledge, than the rejection of wormwood by a child is evidence that it will not relish sugar. Before the appetite of the people for knowledge can be fairly decided on, *1st*, They must be placed in external circumstances calculated to favor the activity of their moral and intellectual powers ; *2dly*, Knowledge really related to their faculties must be presented to them ; and, *3dly*, The teachers must be men qualified by nature and acquirements to communicate useful information and command respect. Allow me to add, that the people have never had presented to them even a glimpse of the philosophy of their own nature, physical and mental ; so that, if there is any course of study or of action, written, as it were, in the constitution of man, and recommended by his Creator to attention, not one word of that lesson has been read to the people. Teachers themselves were ignorant. Phrenology for the first time has supplied this information.

Even assuming the argument against the appetite of the people for instruction to be more sound than it is, the mode proposed of supplying the defect does not appear to me to be altogether satisfactory. After the churches and colleges have been built, and ministers and professors endowed, the question remains, Who are appointed to arouse and collect

the people for instruction? It is easy to say that it is the duty of these teachers to do so; but professors cannot, in consistency with the practices of society, go into the houses, the streets, and the highways, and expostulate with the people on their want of a moral and intellectual appetite, and importune them to come to the banquet and be fed. They are remunerated by fees contributed by their students, and they cannot go a-begging for an audience without having their motives entirely misinterpreted. Great obstacles lie in the way even of the clergy pursuing such a course. There are various sects in religion, and various shades of belief. The families who differ from the State-minister will not voluntarily accept of his invitation; and if it be too anxiously urged upon them, they will repel it. If the clergy of every sect become active belligerents in favor each of his own opinions, they will convert the world into a theatre of theologic war; and the minds of men will become the prize of the acutest wrangler. The decorum of the clerical character requires a modest, calm, and dignified deportment, unlike that of solicitation and importunity. Yet, unless there be prompters to enforce attendance, or unless the appetite already exists to induce the people spontaneously to repair to the portals of the church or the halls of the university, the richest viands for the mind may be spread out there, and no guests be found to enjoy their delicious savors. Accordingly, we perceive, that, after the London University has been reared, and many other institu-

tions have been completed, the students are few, and the good accomplished limited. The citizens, educated in words alone, are unbelievers in the existence of valuable information, and go on in their wonted rounds of labor and money-making, unconscious of their own ignorance, ignorant of the value of science, and without a motive to engage their sons in study. Other institutions for the scientific instruction of the industrious classes have elsewhere shared a similar fate. They have perhaps been frequented for a short time, while novelty and influential names produced excitement, and soon sunk into inefficiency. For these unfavorable results, I blame the stinted education given to the existing generation in their primary schools. These left them sceptics concerning even the existence of useful knowledge, and defrauded them of all taste of its advantages and sweets.

It is true, therefore, that, in the present state of society, there is a vast body of men, who, from their circumstances and training, feel no spontaneous impulses towards improving their moral and intellectual nature, and who, if provided with food, clothing, shelter and amusement, desire little else. But there are also among the people many gifted spirits, whose native energies have enabled them to surmount all the obstacles presented by imperfect education to the expansion of their minds; whose moral and intellectual faculties long for knowledge, for refinement, and for improvement in virtue, as keenly as their bodily appetites burn for their proper grati-

fications. These individuals have struggled hard for the food of the mind ; and they have generally obtained it. They not only desire to advance themselves, but they feel a call within them to become apostles or missionaries, to excite their less vivacious and intellectual brethren to improvement. This appears to me to be the class instituted by Providence for calling the unwilling guests to the banquet of the mind.

All institutions which have hitherto been formed, so far as I am aware, have omitted to invoke the co-operation of these important auxiliaries. Bankers, merchants, and landed gentlemen, whose consequence and influence originated in, and depended chiefly on wealth, have been the founders and directors of most of the existing institutions ; and by rank, habits, feelings, and inclinations, they were far removed from the class of slumbering minds who required to be awakened.

The Association whose cause I now advocate, is founded on better principles. If we wished to institute a bank, or a railway, or an insurance company, we should apply to the richest, most experienced, and most respectable citizens, to give us their subscriptions, their names, and their influence ; just because such men would constitute at once the soul and the body of these associations. But if our object were to form a society, for conversing with amiable but ill-educated men and women on the evils of ignorance and the advantages of knowledge, and for urging them to lend their aid in support of

a scheme for instruction, and to send their sons and their daughters to be taught ; and if we acted on the principles which sagacious men follow in the formation of trading companies — whom would we select to become the members and directors of such an association ? Not, certainly, gentlemen who have attained to eminence in trade, without being conspicuous for their general knowledge ; not persons distinguished merely for wealth, and but little interested about education ; not men devoted exclusively to science, and removed by their habits and pursuits from familiar intercourse with the busy but ill-educated sons of commerce : — No ; we would give such an association a body and a soul suited to its proper objects, and then we should succeed. These are to be found only among the men, whatever their wealth and rank may be, to whom Providence has given the noble inheritance of active and ardent moral and intellectual faculties ; persons who have had the appetite for knowledge bestowed by nature, without having had instruction placed before them by fortune independently of their own exertions ; men whose minds rejoice in having been the architects of their own education ; who know what it is to have been ignorant, and to have burned with the desire of instruction ; and who, through many difficulties, have acquired a considerable portion of useful knowledge. An association composed of such men, will do much good on apparently small means. They will form a nucleus, around which all interested in the welfare of the rising generation may rally.

They will have it in their power to judge, from observation and experience, what kind of instruction will be most relished, and what lecturers will best communicate it. A few years since, some of the Professors of the University of Edinburgh most laudably gave popular lectures on their sciences to the higher ranks, but they failed in securing audiences after the first and second years. On inquiring into the causes of their want of success, I was led to believe that they were two-fold. 1. The individuals who attended were, in general, not actuated by any real love of science, but chiefly by fashion. 2. The Professors did not put forth their strength to open up their sciences to the understandings of their audiences, with the purpose of giving them an intellectual perception of the practical utility and real importance of the knowledge which they communicated. They addressed chiefly the imagination and sentiment of Wonder of their hearers; they astonished and amused them, but left no permanent impression of advantage resulting from the studies.

The present Association proceeds on different principles. Its lecturers will keep solid instruction, and the enlargement of the minds of their hearers, constantly in view, as their leading objects; combining graces and ornament, so far as is compatible with these ends.

The members and directors of this Association, then, are men engaged in the business of the world, yet ardently alive to the advantages of education, and desirous to induce their fellow-citizens to em-

brace all opportunities of acquiring it. They live and move among, and are connected, by relationship, friendship, and business, with the very classes who require to be roused and induced to come to the halls of science. They are not themselves teachers or lecturers, so that they are at liberty to importune, advise, and plead in favor of knowledge, in a way that no professor can possibly do for himself, to induce hearers to come to his prelections. They will at all times be witnesses of the impressions made, and be much better aware of the kind of information wanted, than any established authorities, who move in a higher sphere, and hold only a formal communication with their ignorant inferiors.

The Directors will be regularly changed, transmitting always the active management to the young and rising of each generation. It would be fatal to the project, if the same individuals were retained constantly in office. Their zeal would flag; the circle of their influence would be exhausted; and drowsiness would seize upon all the movements of the society.

Another advantage of an association of this kind is, that it affords instruction cheap. The industrious classes are so numerous, that if they will only act in combination, there are no mental advantages which wealth can command that they may not attain. As a lecturer, I can certify, that, independently of gain, it is far more animating and agreeable to lecture to 100 than to 20 hearers, and more exciting still to address 200 than 100. By bringing

forward an audience of 200 or 300, therefore, the lecturer will be remunerated by a comparatively small contribution from each, and have his pleasure in teaching greatly increased.

This Association differs in its objects from the School of Arts, and may succeed without interfering with it. The School of Arts is designed chiefly to afford scientific instruction, which may aid operative mechanics in their trades; the present Institution will embrace a more extensive range. There are numerous classes of merchants and traders, besides females of every rank, to whom the instruction provided at the School of Arts is too technical to be useful; and for them chiefly this Association is intended.

An objection may be urged, that only superficial knowledge can be communicated in the proposed lectures, and that the tendency of such instruction is to encourage pedantry and discontent. The line of Pope, that 'a little *learning* is a dangerous thing,' is often quoted in opposition to all proposals for instructing the industrious classes. There is much force in this objection, if learning be confined to mere reading and writing; but it is pointless when applied to instruction in Natural Science, which is the kind of knowledge in favor of which I am now pleading.* 'Learning,' in POPE's time meant an

* 'It would be easy to show,' says Dr. CALDWELL, 'that, under the government of the United States, a very limited amount of school-learning, diffused among the people, is calculated, politically speaking, to injure, rather than to benefit

acquaintance with Latin and Greek, and with the barbarous jargon of logic and metaphysics, which constituted the chief stock of knowledge of what were called educated men in his day. Science has been created to a prodigious extent since the time of POPE; and it has been brought within the reach of the industrious classes only within these twenty years. His remark, therefore, is wholly inapplicable to instruction in useful knowledge. *A little* of such knowledge is better than *none at all*, on the same principle that it is better to have even one penny than to be entirely pennyless. A man who has learned two facts is wiser than he who is acquainted

them. I allude to that degree of attainment, which qualifies them merely to read newspapers, and to understand the meaning of what they contain, without enabling them to judge of its soundness. A people only thus far instructed, are in the fittest of all conditions to be imposed on and misled by artful demagogues and dishonest presses. When party spirit runs high, and the political passions become inflamed, they are induced, by intriguing men, to read papers only on one side of the question. The consequence is plain. Not being able to judge of the truth of the matter laid before them, as respects either the fitness of men, or the tendency of measures, they are liable to be seduced into the most ruinous courses. Were they unable to read at all, or did they never see a newspaper, their condition would be less dangerous. Demagogues would have less power to delude and injure them. In the present state of our country, it is emphatically true, as relates to the great body of the people, that

“A little learning is a dangerous thing.”

‘The only remedy for the evil consists in *the reformation of the public presses, or the diffusion of more learning, knowledge, and virtue among the people.* The former, it is to be appre-

with only one. And if the instruction be useful, the smallest quantity cannot possibly injure, while it may create an appetite for more.

I deny, however, that the knowledge communicated will necessarily be superficial. If the Directors and the Lecturers do their duty, solid and extensive instruction in the great leading principles of the sciences may be communicated in popular lectures. An intelligent student of geography may be very far behind a practical surveyor in his knowledge of the localities of a particular county, every acre of which the surveyor has measured and delineated; but his knowledge of the relative position of all important places, may still be accurate, extensive, and useful. The popular student of anatomy and physiology may be far short of the skill which would enable him to tie an artery or to open a deep-seated tumor; but he may still possess precise and valua-

hended, is not soon to be looked for. On the latter alone, therefore, rest the fate of our government, and the hope of our country. Let the community at large be taught to think correctly and feel soundly, and they will not only have a secure protection against the falsehood and corruption of the presses; those sources of mischief will cease to be encouraged. They must then choose between *reformation* and *extinction*. At the present moment, some of our public presses are the arch-engines of evil to our country, and a disgrace to the human character.'—*A Discourse on the Advantages of a National University, especially in its influence on the Union of the United States; delivered September 25, 1832. By Charles Caldwell, M. D.*

I consider entire ignorance as more dangerous than partial knowledge.

ble information concerning the structure and functions of the great organs, on the proper condition of which health and life depend, and understand and practically apply the principles thus unfolded. Lectures have also a very beneficial influence in communicating to the mind an interest in the science treated of, and a familiarity with its general principles, which enable the student to pursue his researches in private, with a zeal and facility which could not otherwise be attained.

It has been urged against popular instruction, that, by communicating a smattering of knowledge to all, it will prevent the growth of great geniuses and profound philosophers; in short, that we shall have a superficially learned society, but no masters in science. This is the argument of a commonplace mind, which has acquired celebrity by arduous study of other men's thoughts, and which dreads the approach of the vulgar to its shrine of self-importance and conceit. There is a simple answer to the argument. Genius either *is*, or *is not*, necessary to reach the profundities of science. If it is necessary, then genius is an inherent quality of a few gifted minds; it goes on its own way conquering and to conquer; it rejoices in the fellowship of human beings, although their progress be but a furlong, while its advances are a league; its power is within itself, and it is not retarded by the presence of a multitude advancing in the same career. It is cheered by their proximity, animated by their applause; and feels more confident of its reward, in

proportion as they become capable of appreciating its achievements. Genius, therefore, will not stop short in its high career, because the denizens of the busy world are gazing at its progress in fond admiration, and advancing in the same path, although at a vast and perhaps an impassable distance. If genius is not necessary to profound acquirements in philosophy and science, then the higher the common standard of attainment, the farther, must those advance who desire to hold a prominent station in the public esteem. All the motives of interest and ambition by which common minds are actuated, increase in proportion as the class is numerous and enlightened by whom the prizes are awarded. This objection, therefore, has no valid foundation.

It has also been objected that the study of science incapacitates the mind, or at least gives it a distaste for business. This is an important objection, and demands serious attention. What should we say to the assertion that the practice of walking unfitted a man for running; or, that the habit of eating wholesome food had a great tendency to impair the digestive organs? We would laugh at the absurdity: because the man runs by the very bones, tendons, and muscles by which he walks; and walking is the moderate, natural, and healthy exercise of these parts; so that while it may well augment his capacity for running, it cannot possibly impair it, unless carried to excess. Again, we would say that wholesome food is the natural stimulus of the digestive organs, and that if used in moderation, it is the very

best prescription possible for preserving them in health, and that, in fact, there can be no vigor in the function if it be withheld. Now, the Creator has constituted and arranged external nature and the moral and intellectual faculties of man, and adapted them to each other, with the same wisdom which he has manifested in adapting the stomach to food, and the muscles to the law of gravitation. The effects of knowledge are, *1st*, to strengthen the understanding, and, *2dly*, to enable the mind to act, and to judge of the nature of the things and beings with which it is dealing. The moderate study of the order of creation — in other words, Science — has, therefore, the same tendency to strengthen, improve, and gratify the mental faculties, that the use of wholesome food has to benefit the digestive functions. A man transacts business by means of the same mental faculties with which he studies useful science ; and it is pure absurdity to assert either that the study of nature is *not* calculated to strengthen these powers, or that a study which *is* calculated to strengthen them, unfits them for business.

Facts also support the conclusions of reason. The Rev. J. R. BRYCE, of the Belfast Academy, certifies, from experience, that the boys engaged in studying Natural History learned their other lessons with the greatest alacrity ; and a successful private teacher in Edinburgh has declared, that those among his pupils who are permitted to attend to science, outstrip those who do not, even in the study of Greek and Latin.

The sources of the prevalent errors on this head can be easily traced. If young persons give themselves up to the excessive and exclusive study of works of fiction and imagination, or the fine arts, they impair their relish for, and also their powers of conducting, practical business ; and the reasons are obvious. Works of fiction are addressed to a great extent to the propensities and inferior sentiments. The recital of horrors exercises Destructiveness ; the description of wild and mysterious events arouses Wonder, Cautiousness, and Secretiveness ; and images of Beauty and loveliness stimulate Ideality : but business is not transacted by any of these faculties. When they become highly active, the transition to sober observation and reflection is painful and distasteful, and business is disliked. The exclusive study of the Fine Arts exercises Ideality, the higher sentiments, and several of the intellectual powers ; and gives these great refinement and susceptibility : but it leaves many of the subordinate feelings and some of the reflecting faculties uncultivated ; while the whole objects with which it is conversant, belong to the world of imagination. This study, therefore, when exclusive, both unfits the faculties for practical business, and withholds ideas connected with worldly affairs. But the study of science does not rouse any of the inferior propensities, and does not excite exclusively the imagination : on the contrary, it exercises the intellectual faculties and the moral sentiments ; and as these are the very powers by which business is accom-

plished, it is an admirable preparation for practical usefulness. Those, therefore, who imagine that they have facts in support of the baneful influence of instruction on the mind in unfitting it for business, confound science with fiction.

But there is one effect of the study of science, which I am completely prepared to admit. When the mind has been opened up to the great designs of Providence, as displayed in creation, and has learned to draw its best enjoyments from contemplating their excellence and grandeur and taking a part in their execution, there will be a distaste for excessive and exclusive money-grubbing, and for the present long and toilsome hours of attendance at the manufactory, the shop, and the counting-house. These will be felt to be inimical to man's moral and intellectual progression, and be restricted as a grievance. This result I hail as a positive advantage, believing, as I do, that all our wants may be amply supplied, and time be still left us to cultivate and enjoy our rational powers. Should this result in the course of ages follow, it will be an example, not of study producing incapacity for business, but of moral and intellectual enlightenment regulating the plan of life, and reducing it into conformity with the constitution of our rational nature.

The class of persons who would be benefited by the lectures which this Association will bring forward, is one of great importance. They have votes for members of Parliament, and exercise political power. From among them are chosen the mana-

gers of many of the Hospitals for educating children, both male and female, in this city. They become commissioners of Police, and in that capacity superintend all public measures for increasing the health and comfort of the citizens. They are elected members of the Town Council of Edinburgh, and become the patrons of the City's public schools, of the High School, of most of the Chairs in the University, and of the City Churches.* Society is at present in a state of visible commotion. Old ideas, and habits, and practices, are fast disappearing, and the public mind is bounding forward eagerly in search of new and untried institutions. Is it not the interest of all, that sound knowledge of physical science and the nature of man, should be diffused among all ranks, and particularly among that class which is influential by its property and respected for its morality, and which requires only intellectual information to render it at once the ornament and safeguard of the state? Mechanics' institutions provide instruction in science for operative tradesmen; and the Universities open wide their gates for the aristocracy: but the middle class of citizens, and females of all ranks, although at least as im-

* One of the first consequences of the instruction of this class of the community in science, will probably be the reformation of the primary schools of this city; and the second, if not simultaneous with the other, will be the ventilating of the churches and public rooms: in both of which matters the profound ignorance of the last generation continues to inflict much evil on the present inhabitants of Edinburgh.

portant and interesting from their numbers, their position, and their wealth, as either of the other two, have hitherto been overlooked. They are now pursuing the only course that can conduct them to an equality in point of knowledge with the classes above and below them in the social scale :—they are coming forward to provide the means of instruction for themselves. This is precisely what they ought to do. They possess among themselves too many well-informed, able, and active men, to render it necessary for them to go into leading-strings under the great in literature and science ; and too much wealth to permit them to solicit pecuniary aid from any individuals out of their own circle. They come forth, therefore, in their own strength and might, conscious that, by union and co-operation, they can accomplish their own intellectual regeneration. Edinburgh stands pre-eminent in literary and philosophical reputation among the cities of the world ; but it would place a still more noble crown of glory on her head, could she boast of industrious citizens combining talents for every species of practical usefulness, with refined taste and cultivated understandings. She would then become the preceptress of the world ; and prove, by her example, that labor, intelligence, morality and religion, go hand in hand in promoting the highest enjoyments of man.

In these Lectures, then, I have endeavored to show, that man is a progressive and improveable

being ; that he is permitted, to some extent, to control the external elements, and apply them to his advantage ; that where this power is denied, he may, by observing their operation, accommodate his conduct to their influence ; that to do either, knowledge of nature and its qualities is indispensable ; that the command to acquire knowledge is thus written in his constitution ; and that the inventions of science and art are intended to give him leisure for studying nature, and for cultivating his moral and intellectual faculties. This Association is founded in the spirit of these views :—let us all hold out to it the hand of encouragement, and promote its success.

Note.—Since the foregoing Lectures were put in types, a friend has sent me the following information :—‘It is curious that, at this moment, the *Statuta Solennia* of the University of Edinburgh for the degree of M. D., should for the first time appear in an *English* dress. An adequate knowledge of Latin is still, of course, required ; but if the graduate show that he can easily read Celsus or Cicero De Natura Deorum, no more is required : the great examination goes on in English, and the modest student is no longer perplexed by having to think and speak in a dead language.’

APPENDIX.

SUMMARY OF THE PROCEEDINGS OF THE ASSOCIATION FOR PROCURING INSTRUCTION IN USEFUL AND ENTERTAINING SCIENCE, FROM ITS INSTITUTION, IN 1832, TO 1ST DECEMBER, 1833.

IN the summer of 1832, several individuals engaged in mercantile and trading avocations, and who were then attending Mr. COMBE's evening Course of Lectures on Phrenology, expressed a strong desire for a more extended course during winter, along with lectures on some other subjects of Natural Science. With this view they resolved to form themselves into an association for procuring such instruction, at convenient hours, and on moderate terms; and in order to make the public acquainted with their intentions, as well as to ascertain the support likely to be obtained, they printed and circulated the following 'Proposal for Courses of Lectures on Natural History—Chemistry—and Phrenology combined with Physiology.'

'The want of the means of obtaining a general knowledge of these sciences has long been felt by the Middle Classes of society. Hitherto they have possessed few opportunities for becoming acquainted with a mass of highly useful and interesting information,

which it would be the object of these Lectures to communicate, and which, in its numerous applications to the purposes of life, is calculated greatly to improve our physical, moral, and intellectual nature.

‘The regular lectures delivered on the subjects before mentioned—besides being inaccessible to *Females*, and being delivered at hours inconvenient for persons engaged in ordinary business—are too purely scientific, too little applicable to the advancement of individuals in general knowledge, and also too expensive, to benefit the unprofessional student. A wide field of usefulness therefore lies open, which may be successfully occupied by skilful teachers, if duly encouraged by the public.

‘It is unnecessary to enter into a lengthened statement of the advantages of a knowledge of the sciences above named. To those who have been longing for such an opportunity as is now offered to them, the mere proposal is enough; but to others who may have been hitherto indifferent about such matters, or who would seek nothing more than amusement after closing their daily labors, it may be proper to state, that the branches which are included in the proposed Courses, afford an inexhaustible supply of the most varied and interesting *amusement* as well as *instruction*. Natural Science possesses charms to interest both the old and the young, the learned and the unlearned; and were the simple and beautiful laws by which the whole of nature is held together more studied and better understood than they generally are, how differently, indeed, would the world be looked upon, and with what innocent, profitable, and lasting pleasures would those hours then be spent, which are

now too often trifled away in frivolity and *ennui*, or dissipation.

‘To some it may appear strange, to many it may seem even ridiculous, to see Phrenology in the list of the proposed studies; but the projectors of this Course are persuaded, that Phrenology is the only philosophical system which has any claim to the character of a true theory of human nature, and that exhibits man in his true relation to the other beings of this world. While, therefore, two of the departments of the Lectures, Natural History and Chemistry, are intended for instruction in the nature of inorganic or lifeless substances, and of organic and animal beings,—the projectors look to Phrenology, combined with Physiology, for the most important of all scientific information—the knowledge of man’s nature as an organized, animated, and moral being. Without this, and a knowledge of the relation in which man stands to other beings, the proposed Lectures would be imperfect; and, judging from what they have lately seen—the continued interest with which Mr. COMBE’S Evening Lectures on Phrenology have been attended, as also from what they have heard of the interest taken in similar lectures recently given at the London Mechanics’ Institution and elsewhere—the projectors flatter themselves that this part of the proposal will meet with very general approbation among those persons for whom the Courses are intended.

‘While, however, it is considered of importance that all the three departments of the Lectures should be attended, it will be left to the choice of Subscribers to attend any one or more, at pleasure.’ And with this view the following fees were fixed:—For Geolo-

gy alone, 7s. 6d. ; Chemistry alone, 10s. 6d. ; Phrenology and Physiology alone, 10s. 6d. ; Geology and Chemistry combined, 13s. 6d. ; Geology, Phrenology and Physiology combined, 13s. 6d. ; Chemistry, Phrenology and Physiology combined, 15s. ; Geology, Chemistry, Phrenology and Physiology combined, 20s. ; — All the tickets transferable.

It having soon appeared that the plan was generally approved of, arrangements were made with Dr. MURRAY to give the Lectures on Geology and Chemistry, and with Mr. COMBE to give those on Phrenology and Physiology. In October, a numerous meeting of Subscribers and others was held in the Waterloo Rooms, when a Report, explanatory of the measures which had been adopted, and of the farther objects in view, was read and approved of, and a Committee appointed for superintending the details. The number of Subscribers, even at the commencement of the Lectures, exceeded all expectation ; and in a short time it became necessary, owing to the crowded state of the rooms, to stop the farther sale of tickets, and limit the number of visitors, although the latter paid 6d. for admission to each lecture. The remarkable success of this Winter Course will be apparent from the following detailed Abstract of Receipt and Expenditure, published in the Directors' Second Report.

Detailed Abstract of Receipt and Expenditure.

RECEIPT.

	Tickets Sold.	Visitors Admitted.	Total Received.
GEOLOGY, . . .	251 . . L. 69 4 0	. 142 . . L. 3 11 0	. L. 72 15 0
CHEMISTRY, . 229	90 0 0	. 387 9 13 6	. . . 99 13 6
PHRENOLOGY, 225	89 18 6	. 760 . . . 17 10 0	. . . 107 8 6
	<hr/> 705	<hr/> L. 249 2 6	<hr/> 1229
	<hr/>	<hr/> L. 30 14 6	<hr/> L. 279 17 0
	<hr/>	<hr/>	<hr/>

EXPENDITURE.

GEOLOGY & CHEMISTRY.—Paid Dr.		
MURRAY, L. 52: 10: 0; Fittings	} L. 115 0 3	
in Waterloo Rooms, L. 16: 11: 8;		
Room Rent, Door Keeper, and		
Cleaning, L. 30: 15: 8; proportion		
of advertising and printing,		
L. 8: 10: 11; Gas, Coals, Station-		
ary, &c. L. 5: 12: 0,		
PHRENOLOGY.—Paid Fittings in		
Clyde Street Hall, L. 9: 15: 4;	} 107 8 6	
proportion of advertising & print-		
ing, L. 6: 5: 10; Mr. COMBE,		
per agreement, L. 91: 7: 4, . . }		
Total Outlay		222 8 9
<hr/>		
Surplus on GEOLOGY and CHEMISTRY classes,		L. 57 8 3
Donation from Mr. COMBE,		21 0 0
		<hr/>
Total SURPLUS at 22d March, 1833, in the }		L. 78 8 3
Bank of A. ALLAN & Co. }		

At the date of the above Report, on 25th March, Mr. COMBE's Course was not terminated, but continued till 25th April, in which intermediate period 293 additional visitors were admitted; being in all 1218 visitors and ticket-holders for his class. At the conclusion of his Course, Mr. Combe also delivered three additional forenoon Lectures on Popular Education, which were well attended, and the proceeds of which were added to the funds of the Association.

It having been originally intended that the subjects to be successively treated of should embrace all the most interesting departments of Natural Science, and it being now deemed expedient that these should be considered in the order in which they would most advantageously or naturally follow each other, the Directors agreed with Professor DRUMMOND of Belfast, a gentleman highly recommended, to give a course of twenty-five Lectures on Botany during the summer. These Lectures, notwithstanding several obstacles — such as the epidemic which so generally prevailed in May, the usual press of mercantile business during that month, and other causes — were respectably and regularly attended; 191 Tickets having been sold at 7s. 6d. each, and 162 Visitors admitted at 6d., — the proceeds amounting in all to £75. 4s., as appears from the detailed Abstract of Receipt and Expenditure appended to the Third printed Report.

Following out their plan, and considering it prudent in the mean time, not to repeat any Course of Lectures during two successive seasons, the Directors next arranged for the Courses of Lectures now delivering in the WATERLOO ROOMS, on Natural Philosophy, by GEORGE LEES, A. M., of the Scottish Naval and Military Academy — on Astronomy, by the Rev. THOMAS GRAY, of Kircaldy — and on Physiology and Zoology by Mr. W. A. F. BROWNE, Surgeon, Stirling. The prices of the Tickets to each of these Courses are as follows: — Natural Philosophy, if taken alone, (30 Lectures,) 10s. 6d.; Astronomy alone, (20 Lectures,) 9s.; Physiology and Zoology alone, (25 Lectures,) 7s. 6d.; Natural Philosophy and Astronomy, if taken together, 14s.; Natural Philosophy and Physiology, to-

gether, 13s. 6d. ; Astronomy and Physiology, together, 12s. ; Natural Philosophy, Astronomy, and Physiology, together, £1. — Visitors are admitted upon paying 6d. at the door for the Lectures on Natural Philosophy and Physiology, and 1s. for those on Astronomy.

These Lectures were commenced in the first week of November ; and, at this date (6th December,) there have been sold, for the course on

Natural Philosophy, . . . 248 Tickets.

Astronomy, 311

Physiology and Zoology, . 304

Total 863 sold.

Preliminary to these courses, Mr. COMBE, at the solicitation of the Directors, repeated his 'Three Lectures on Popular Education ; and from the great satisfaction which they gave to the highly respectable and numerous audience who attended, the Directors further ventured to request that they might be published, for the benefit of all who take an interest in so important a subject. This request has now been also very kindly complied with by Mr. COMBE ; and it is not doubted that the enlightened and practical views advanced in these Lectures will speedily operate in effecting an important improvement in our public and private seminaries of Education.

The Second Meeting of the Subscribers will be held in a few weeks, for electing new office-bearers, and considering regulations for the future government of the Institution. It is proposed, that there shall be twenty-four Directors, one half of whom shall be annually changed, and an equal number elected by a general meeting of the members, — that an annual

payment of £1. 1s. shall entitle the contributor to free Tickets for all the Lectures, to vote in the election of Directors, and to enjoy all the other privileges of an ordinary member, — that individuals shall be allowed to purchase tickets for admission to one or more of the Lectures without becoming regular members, — and that measures shall be speedily taken for raising, in £5. or £10. Shares, a sum for which interest shall be paid, sufficient to build commodious premises, in a central situation, for the delivery of public Lectures, and for other educational purposes.

Such is a short outline of the present Association. In comparison with similar Institutions, its pecuniary means have been limited; but still these have been more than sufficient for defraying all necessary expenses. These expenses, too, have been considerable, particularly for room-rent, fittings, advertisings, and printing; for, besides the original Prospectus, the Directors have already printed, and widely circulated, three detailed Reports, the same number of comprehensive Syllabuses for the three season Courses of Lectures, and a Tabular View of the Linnean System of Classification of Plants, with explanatory Remarks, amounting in all to 6400 copies. Certain fundamental principles have been steadily kept in view, viz. that no reliance should be placed on eleemosynary aid — that the Directors should be regularly changed — that the instruction should be interesting, practical, and useful — that it should be applicable to both sexes, from twelve years of age and upwards — and that full value should be given to the Subscribers for their money, as well as a reasonable remuneration to the Lecturers for their services. By continuing to act

upon these principles, and by securing the aid of well-qualified Teachers, the Directors confidently hope for a continuance of public support.

DIRECTORS.—ALEX. CAMPBELL, Hatmaker, 15 North Bridge Street; JOHN CASTLE, Clothier, 126 High Street; THOMAS CLEGHORN, Nurseryman, 4 Prince's Street; WILLIAM CUNNINGHAM, Jeweller, 51 North Bridge Street; JAMES DOWIE, His Majesty's Bootmaker in Ordinary for Scotland, 57 Frederick Street; W. FRASER, Printer, Old Fishmarket; A. G. HUNTER junior, Hatter, 50 New Buildings; A. K. JOHNSTON, Engraver, High Street; CHARLES LAWSON, Seedsman, Hunter Square; JOHN LORIMER, Builder, 7 Vennel; JOHN MACKAY, 49 North Bridge; JAMES M'KEAN, Seal Engraver, 23 Clyde Street; THOMAS MOFFAT, Bookseller, 27 North Bridge; JOHN MORTIMER, Tailor, 25 Prince's Street; PETER MURRAY, 26 Minto Street, Newington; ROBERT SCLATER, junior, 11 South Bridge; JAMES SLIGHT, Engineer, Reid's Court; THOMAS WHITE, 14 Gayfield Square; ROBERT WRIGHT, 63 New Buildings, North Bridge Street.

6th December, 1833.



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